TO MEMBERS OF THE ACADEMIC AND STUDENT AFFAIRS COMMITTEE AND THE FINANCE AND CAPITAL STRATEGIES COMMITTEE:

<u>**DISCUSSION ITEM**</u>

For Meeting of March 17, 2022

STRATEGIC CAMPUS OVERVIEW, SANTA CRUZ CAMPUS

At this meeting, UC Santa Cruz Chancellor Larive will present the campus vision for the future—leading at the intersection of innovation and social justice——and how the campus's strengths, opportunities and planning processes advance this vision.

Chancellor Larive's remarks will cover goals she established in 2019 to guide UC Santa Cruz's work. These goals have focused the university leadership's efforts and provide a foundation upon which UC Santa Cruz, as a student-centered research university, will pursue excellence in our mission of education, research and public service. The four strategic goals are to:

- Advance student success by improving retention and graduation rates and by closing equity gaps;
- Elevate UC Santa Cruz's research profile and increase the impact of our research;
- Foster an inclusive campus climate that embraces and values equity, diversity and inclusion; and
- Improve the efficiency, effectiveness, resilience, and sustainability of our operations.

Despite the challenges UC Santa Cruz has experienced since 2019, our commitment to achieving these goals has not wavered.

While initially focused solely on efficiency and effectiveness, the fourth goal has been expanded. Resiliency was added in 2020 as a result of our experiences dealing with the COVID-19 pandemic, as well as with the evacuation of our campus in summer 2020 due to the CZU Lightening Complex Wildfire, which destroyed roughly 1,000 homes in our county and burned nearly to our doorstep. Sustainability was added in 2021 as we sought to strengthen our efforts to address the challenges global climate change presents to our campus, California, and the world. Chancellor Larive will focus on the strengths, challenges, and opportunities associated with these campus wide goals, with an emphasis on recent and new activities and accomplishments, rather than a routine review of the campus and its programs.

Preface: Land acknowledgement

The land acknowledgement used at UC Santa Cruz was developed in partnership with the Amah Mutsun Tribal Band Chairman and the [Amah Mutsun Relearning Program at the UCSC Arboretum](#).

> *The land on which we gather is the unceded territory of the Awaswas-speaking Uypi Tribe. The Amah Mutsun Tribal Band, comprised of the descendants of indigenous people taken to missions Santa Cruz and San Juan Bautista during Spanish colonization of the*

Central Coast, is today working hard to restore traditional stewardship practices on these lands and heal from historical trauma.

CAMPUS OVERVIEW AND ASPIRATIONS

UC Santa Cruz has earned international distinction for high-impact research and an uncommon commitment to teaching and public service. Leading at the intersection of innovation, social justice, and sustainability, UC Santa Cruz faculty and alumni have been at the forefront of sequencing the human genome, creating the organic farming movement, unlocking the mysteries of our galaxy, and using interdisciplinary research to analyze systems of oppression to create a more just and equitable society. Members of the UC Santa Cruz campus community share a commitment to use their voices, knowledge and talents to effect real change in the world.

UC Santa Cruz offers 66 undergraduate majors and 64 graduate programs through four academic divisions: Arts, Humanities, Physical and Biological Sciences and Social Sciences, and one school, the Baskin School of Engineering.

The campus is known worldwide for its excellence and innovation in many fields including agroecology; astronomy and astrophysics; cyberphysical systems; data storage and open source software; ecology, climate change and sustainability; feminist studies; games and playable media; genomics, infectious disease and RNA biology; linguistics; and marine science and policy. The interdisciplinary focus of research and learning at UC Santa Cruz brings together students and faculty across academic disciplines to address significant societal challenges.

UC Santa Cruz holds the distinction of being one of only two members of the American Association of Universities (AAU) designated both as an Hispanic Serving Institution (HSI) and an Asian American Native American Pacific Islander Serving Institution (AANAPISI), highlighting our commitment to equitable educational access and research excellence. UC Santa Cruz strives to enroll a student population that reflects the diversity of California.

More than 19,000 students are enrolled at UC Santa Cruz in undergraduate, graduate, and professional degree programs. The campus pairs high-impact research with ten, tight-knit residential colleges that offer undergraduate students both the experience of a small liberal arts college and the depth and rigor of a major research university. The colleges are guided by distinct themes that inform their academic and student-life programs. This academic year, the campus is celebrating the naming of College Ten for the late U.S. Rep. John R. Lewis, building on the college's theme of social justice and community.

Graduate education is a critical element of our research and teaching missions. UC Santa Cruz enrolls approximately 1,500 Ph.D. and 450 master's candidates in 41 academic fields and 57 concentrations. UC Santa Cruz offers five professional master's degrees: four programs in the Baskin School of Engineering based at our Silicon Valley campus (Games and Playable Media, Serious Games, Natural Language Processing, and Human-Computer Interaction) and one program on our residential campus (Applied Economics and Finance), housed in the Economics department. Among many academic master's degrees, our programs in Scientific Communication, widely regarded as one of the best science-writing programs in the world; Coastal Science and Policy, equipping emerging leaders to respond to complex problems with effective, practical solutions; and Social Documentation, designed for future documentarians

committed to social change, stand out as distinctive degrees that uniquely prepare students for careers as change-makers.

Located in and around a redwood forest overlooking the Monterey Bay, our residential campus is widely regarded as one of the most beautiful in the world. UC Santa Cruz includes three sites in Santa Cruz: the 2,000-acre residential campus, the Westside Research Park facility, and our Coastal Science Campus located at the edge of the Monterey Bay National Marine Sanctuary. Our Silicon Valley Campus extends the reach of UC Santa Cruz and is home to UCSC Extension, which includes UC Scout and Smarter Balanced, and houses the four Baskin School of Engineering professional master's programs. Many of the university's office and business functions are located at the Scotts Valley Center, which is about nine miles away from our residential campus. Anchor programs and expansion plans are in the works to better leverage our Monterey Bay Education, Science and Technology (MBEST) Research Park in Marina. UC Santa Cruz also manages the Año Nuevo, Fort Ord, Younger Lagoon, and Landels-Hill Big Creek Natural Reserves, which are part of the UC Natural Reserve System (UCNRS). These varied environments offer students, staff and faculty multiple locations in which to learn, experiment, and innovate, and provide opportunities and resources to leverage academic research to positively impact the region, the state, and the world.
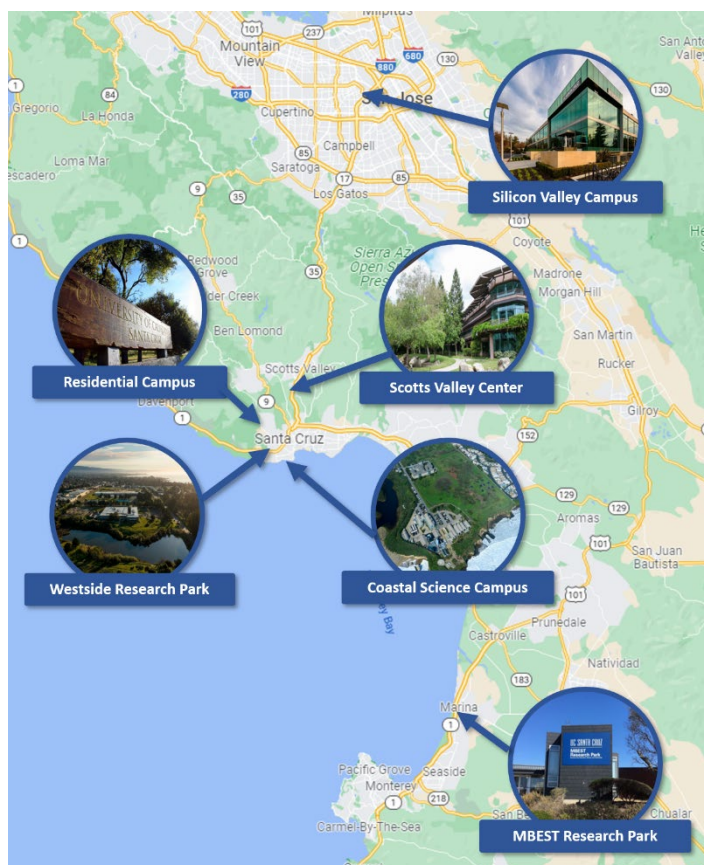
UC Santa Cruz's athletics program is unique in the UC system; all of our intercollegiate teams compete at the NCAA- Division III level. In Division III, students do not receive athletic scholarships, and participate solely because of their love of the sport and the collective positive experience of being on a team. Our Recreation Department sponsors a wide range of sports, fitness and outdoor activities and classes including Adventure Hikes, Kayak Tours, Surfing, Boating and Scuba.

And we think UC Santa Cruz has the most unique mascot: the intrepid Banana Slug. Banana Slug alumni are everywhere — now 140,000 strong — and are leaders in a range of fields as highly accomplished scientists, journalists, social activists, artists, political and business leaders, and more. Through their work, Banana Slug alumni are changing the world.

Rankings and Recognitions

UC Santa Cruz is proud to have been elected to the Association of American Universities (AAU) in 2019, a recognition of our long-standing commitment to excellence and research impact.

AAU's 66-member universities are on the leading edge of innovation, scholarship, and solutions that contribute to scientific progress, economic development, security, and well-being.

Further recognizing our excellence on a global scale, in 2020 UC Santa Cruz was elected to the Association of Pacific Rim Universities (APRU), a consortium of 61 leading universities. APRU fosters collaboration between member universities, researchers, and policymakers contributing to economic, scientific and cultural advancement in the Pacific Rim region.

Our election to the AAU and APRU reflects the fact that though UCSC is small when compared to other public research-intensive universities, we have outsized impact when evaluated on a per capita basis, for example citations per faculty member. UCSC is also distinctive in its structure, focus and shared values of innovation, social justice and sustainability, and that uniqueness is highlighted in the areas in which we rank highly and in the accolades received by our faculty.

- We were gratified to learn recently that UC Santa Cruz ranks first in the nation among 130 R1 universities for gender and racial diversity in leadership according to a 2022 report by the [Women's Power Gap Initiative](#) at the Eos Foundation, in partnership with the American Association of University Women (AAUW).

- *U.S. News and World Report* 2022 rankings placed UC Santa Cruz at No. 9 overall and the No. 3 public university for undergraduate computer game/simulation development and the Princeton Review ranked our graduate program as No. 18 in the world for video-game design, the only UC campus in the top 25. Our Games and Playable Media department landed at No. 1 in the 2021 worldwide ranking of institutions active in technical games research.

- Our Earth and Planetary Sciences graduate program is ranked No. 19 (No. 13 public) overall and No. 5 public in the subfields of geophysics and seismology by *U.S. News and World Report* in their 2022 list.

- The 2022 QS World University Rankings placed UC Santa Cruz as No. 61 globally in citations per faculty. Our Linguistics program was highlighted in this ranking as No. 53 in the world and tied for No.13 among U.S. public universities.

- Princeton Review in 2021 ranked UC Santa Cruz as the No. 3 public university in the U.S. for students focused on making a difference in the world and the No. 3 green college in the nation, a testament to the campus's longstanding commitment to environmental stewardship and sustainability

Faculty Awards and Honors

- 1 Nobel Laureate (Laureate Carol Greider received the award while on the faculty at Johns Hopkins University)
- 12 National Academy of Science members
- 1 National Academy of Engineering member
- 1 National Academy of Medicine member
- 3 National Academy of Inventors fellows
- 25 American Academy of Arts and Sciences members
- 1 Royal Society member
- 40 American Association for the Advancement of Science fellows
- 16 Institute of Electrical and Electronics Engineers fellows

The list below highlights a few of the many recent awards received by UCSC faculty:

- Professor David Haussler, director of the UC Santa Cruz Genomics Institute, was ranked sixth in the world in the 2021 edition of the Top Scientists Ranking for Computer Science and Electronics.

- The Andrew W. Mellon Foundation awarded Professor Gina Dent and Dr. Rachel Nelson, Director of the Institute of the Arts and Sciences, a $2 million grant to support Visualizing Abolition, the nation's most ambitious and sustained art and prison abolition initiative.

- Professor Enrico Ramirez-Ruiz received both the American Physical Society's Nicholson Medal recognizing his innovations in mentoring and the Distinguished Mentor Award of the Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS). In February 2022, Ramirez-Ruiz was selected by the White House for a Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM).

- The Ecological Society of America honored Professor Erika Zavaleta with the Commitment to Human Diversity in Ecology award.

- Professor J. Xavier Prochaska and graduate student Sunil Simha were part of an international team awarded the Newcomb Cleveland Prize, given annually to the authors of the top paper published in the AAAS journal *Science*.

- A team of UCSC researchers were co-authors of the *PNAS* Cozzarelli Prize, recognizing outstanding contributions in the area of Applied Biological, Agricultural, and Environmental Sciences for their paper on the behavior of coral reef fish.

- Professor Emerita Karen Tei Yamashita received the 2021 Medal for Distinguished Contribution to American Letters from the National Book Foundation, presenter of the National Book Awards.

- Two Arts professors, Irene Lusztig and Elizabeth Stephens were among the 184 recipients of 2021 Guggenheim Fellowships, selected from nearly 3,000 applicants.

Plotting a Course for Even Greater Success and Impact

UC Santa Cruz has been able to achieve these highlighted successes as one of the smallest UC campuses in terms of the numbers of faculty, staff and students. The impact of our small Senate faculty in particular, around 600 research and teaching faculty, reflects a campus that consistently punches above our weight. As careful financial stewards practiced at making the most of our resources, we are excited by the additional possibilities created by our positive financial outlook resulting from improvements to the state's budget, the adoption of the Tuition Stability Plan by Regents, and the agreement between the UC President and the chancellors to adjust the allocation of state funds to provide Riverside, Santa Barbara, and Santa Cruz with at least 95 percent of the systemwide unweighted per student allocation. As a reference, in FY 2021 the unweighted per student state allocation to UC Santa Cruz was 87.6 percent of the systemwide average. We are grateful to have received $4.9 million in FY 2022 as the first of three anticipated allocations through this funding plan. Our strategic fiscal approach, reflected in our fourth campus goal focused on efficiency, effectiveness, resilience and sustainability, positions us to address historical challenges and take full advantage of these financial opportunities.
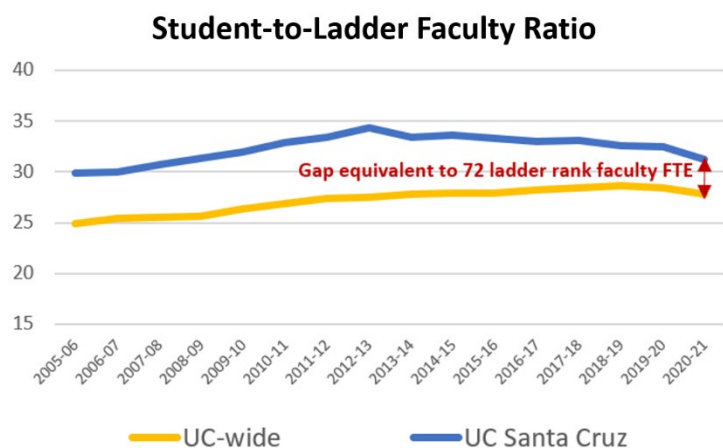
Core to achieving our goals and aspirations are plans to grow our capacity [through the addition of 100 new faculty positions over the next decade](). Faculty are the foundation of the research university and integral to our goals of advancing student success. Realizing the opportunities that growing the faculty can bring to the university will require that we leverage our 2021 Long Range Development Plan, approved by the UC Regents in fall 2021, to address the challenges of providing new faculty, staff and students with sufficient access to affordable housing and expanding research, teaching and learning resources and facilities.

A campus strategic plan that leverages faculty hiring to enhance existing research strengths, foster discovery, innovation and invention, and seize opportunities in emerging fields, such as sustainability, environmental policy and justice, and climate change, will advance our status as a national leader at the intersection of innovation, social justice, and sustainability, and will amplify our positive impact on California and the world. To guide future investments and align them with efforts to achieve campus goals, the UC Santa Cruz campus community will come together in the coming year to collaborate in the development of a strategic campus plan for the next decade. This process will guide the transformation of interdisciplinary education and the research enterprise to envision UC Santa Cruz in 2032 as an internationally recognized, student-centered research university equipped to contribute solutions to the world's greatest challenges. This process will consider enhancements to existing areas of strength and growing student interest while exploring opportunities for new academic programs and schools. The planning process will also provide a foundation for the launch of UC Santa Cruz's next comprehensive fundraising campaign, building on the success of the first campaign that ended in 2017 having raised $335 million.

This faculty hiring initiative will also help us further foster an inclusive campus climate that embraces and values diversity and equity. Increasing the size of the faculty, coupled with an anticipated 200 to 250 additional faculty needed over the next decade to fill positions vacated due to retirement and separations, will provide UC Santa Cruz with an unparalleled opportunity to increase faculty diversity.

As shown in the figure below, UC Santa Cruz has the highest student-to-faculty ratio in the system; 72 additional faculty are needed simply to bring our ratio to the systemwide average.

Growing the faculty will benefit students through smaller classes, new academic programs and curricula, more inclusive pedagogical approaches to support equitable learning, and increased opportunities for faculty-mentored experiences in research and creative activities. The additional faculty positions will also support enrollment growth when coupled with additional on-campus student housing, and as more students take advantage of learning opportunities outside of Santa Cruz by participating in study abroad, UCDC, UC Sacramento, internships, online courses and programs, and professional programs in Silicon Valley.

Student-to-Ladder Faculty Ratio

Gap equivalent to 72 ladder rank faculty FTE

UC-wide   UC Santa Cruz

This prioritization of faculty hiring intersects with and amplifies other efforts to achieve campus goals. In October 2021, UC Santa Cruz announced the Student Success Initiative, a philanthropic campaign to increase financial support for undergraduate and graduate students and advance their access to the guidance and learning opportunities fundamental to their education and, ultimately, future success.

Embracing our future as an equity-driven and student-centered research university will advance UC Santa Cruz's status as a national leader in addressing the challenges facing American higher education. That future is driven by the pursuit of our four campus goals outlined in the sections below. Each section is organized to highlight UC Santa Cruz's strengths, challenges and opportunities.

GOAL 1: ADVANCING STUDENT SUCCESS

UC Santa Cruz takes an equity-centered, holistic approach to student success, striving to build an environment that promotes and supports academic achievement, nurtures health and well-being, and promotes social mobility. Our dedicated faculty and staff are at the heart of student success, through their teaching and research, experiential learning opportunities, and the mentorship and support they provide to students; the entire UC Santa Cruz community embraces the life-changing potential of higher education. Since her arrival in July 2019, Chancellor Larive has identified advancing student success as our top institutional priority. With that renewed focus, the campus community has increasingly demonstrated a shared commitment to social justice in the ways that we center educational equity for all students.

For the fall 2021 academic quarter, UC Santa Cruz enrolled 19,842 undergraduate, graduate and professional students. UC Santa Cruz students come from 55 of California's 58 counties; from 44 states plus Washington, D.C.; and from 53 different countries. Other figures of note:

- Undergraduate students are projected at 17,100 during 2021-22.
- More than 90 percent of undergraduate students are from California.
- Nearly 94 percent of our fall 2021 transfer students came from California Community Colleges.
- For fall 2022, UC Santa Cruz received applications from nearly 65,900 frosh (up 7 percent over fall 2021) and 11,700 transfer students (down 11 percent).

While continuing to expand access for California's high school and transfer students, UC Santa Cruz seeks to gradually grow its enrollment of national and international students to strengthen the campus' intellectual, social and cultural diversity, and to provide all students with the opportunity to collaborate with their peers from other states and other countries.

UC Santa Cruz is home to a diverse student body. Overall, 57 percent of our undergraduate students can be considered "new generation" students who fall into one or more of the categories of historically underrepresented in higher education (Hispanic/Latinx, Black, Native American, and Pacific Islander), the first generation in their families to attend college, and/or they are from low-income backgrounds (Pell grant eligible). The talent, resilience, hard work, and high achievement of our students earned them admission to UC Santa Cruz, and will prepare them to have an extraordinary impact on the world.

We recognize that for many prospective students, investing in higher education and pursuing career interests can feel far out of reach. About a third of UC Santa Cruz undergraduates are eligible for federal Pell Grants, which generally means having a total family income of $50,000 or less. In a recent survey, nearly 40 percent of UC Santa Cruz undergraduates reported experiencing anxiety and difficulty in focusing on their studies because they were worried about paying for housing. Even with partial assistance, some students find that taking out loans and securing part-time work to cover additional costs is not enough.

Creating a genuinely successful higher education experience requires a holistic approach—one that ensures that students have access to financial support, secure sources of housing and food, mental health support, and connections that will catalyze social mobility. We strive to ensure that students receive financial support to minimize debt, increase student retention and graduation rates; gain career-related experience; and build social connections to access the programs and people who will open doorways beyond the classroom and the campus. We are working to create the conditions for all graduates to successfully launch their careers, or continue their academic journeys, for the greatest societal impact.

Strengths

A deep realignment of academic, student services, and institutional support elements to improve outcomes for students is underway. In addition, staff and faculty have started evaluating near-time indicators of student learning and co-curricular engagement that allow us to adapt practices and policies to the dynamic context in which this work unfolds.

Strength 1: Combine Research Impact with a Focus on Serving New Generation Students

Of the 569 Hispanic-Serving Institutions (HSIs) nationally, UC Santa Cruz is one of 17 HSI R1 institutions, doctoral universities with very high research activity. Given that UC Santa Cruz is one of only two institutions in the nation that holds the honor of being an HSI, an AANAPISI, and a member of the Association of American Universities (AAU), we ask ourselves the question: What does equity-centered student success look like for a leading research institution?

Our grant-funded HSI work has allowed us to examine institutional practices and to see where we must change systems and processes to be more effective for all our students. It has helped us see that the root problem is not an issue of student under-preparation, but lies in our institutional capacity to meet student needs and hopes. Beginning in 2015, UCSC has received funding from

eight Federal HSI grants totaling $16.6 million and has used the grant objectives and funding to work towards institutional transformation, embracing the concept of servingness while working to advance the student experience.

Years	Amount Awarded	Project Title	Partnering Institutions (If applicable)
2015-2020	$2.6 million	Maximizing Achievement Through Preparedness and Advising (MAPA)	N/A
2015-2020	$3.25 million; $1.2 million for UCSC	Cultivamos Excelencia Undergraduate Scholars Program	San Jose City College (submitting institution)
2016-2021	$5.7 million	Science Education and Mentorship in Latino Lives in Academia (SEMILLA)	N/A
2016-2019	$275,000	Diversifying Food Studies and Fostering Community Food Security	N/A
2019-2021	$149,798	SEMILLA TEACH	Cal Teach
2020-2021	$98,246	SEMILLA Remote	N/A
2020-2025	$3 million	Graduating and Advancing New American Scholars (GANAS) - Career Pathways	N/A
2020-2025	$3 million	GANAS: Promoting Post baccalaureate Opportunities for Hispanic Americans	CSUMB
2021-2024	$400,000	Increased Degree Attainment in Food, Agricultural, Natural Resources and Human Sciences: Creating a Regional Pipeline.	CSUMB
2022-2025	$149,500	Humanities Certificate Program for Engineers	N/A

UC Santa Cruz is the only UC HSI campus to date with a U.S. Department of Education grant to work at the graduate level, which points to our institutional evolution, from an initial focus on admission *into* UCSC and success in the first year, to success in major declaration and graduation in the third and fourth year (especially in STEM areas), to success *after* UCSC in graduate school, professional careers, and the professoriate. These different foci do not replace each other but rather build on one another to address inclusion through the full educational pipeline.

Thus, this more encompassing view of HSI work that UCSC is pioneering holds significant promise and potential to help address the issues of underrepresentation of minorities within the UC system at the levels that have impact on higher education broadly including at the graduate level, professoriate, and senior management levels. In this way, equity-centered student success at UC Santa Cruz will help the UC system deliver on its promise to the state of California to be an engine of economic growth and social progress for all. While the focus of HSI work is primarily on supporting Hispanic and Latinx students, we have found that the innovations

developed in these programs supports all students and hope to further this success as we work toward similar outcomes related to our AANAPISI status.

Strength 2: An Integrated Approach to Preparing Faculty to Be Practitioners and Leaders in Educational Equity and Student Success

The UC Santa Cruz Center for Innovations in Teaching and Learning (CITL) has developed a systematic and coordinated approach to faculty and graduate-student teaching development to support evidence-based teaching practices, educational equity, and academic success.

CITL offers training for all incoming faculty hires in its New Faculty Teaching Academy, and provides multi-level professional development for all Graduate Student Instructors and Teaching Assistants. CITL also offers an array of workshops targeted at the department level, so that departments can work closely on changing the practices of curriculum and course design and delivery. In Summer 2021, CITL hosted the first cohort of Project REAL, a five-week course-redesign institute focused on improving STEM gateway courses to achieve more equitable outcomes. There are numerous ongoing learning communities to support continuous dialogue among faculty, including CITL Faculty Fellows, currently focused on Leadership for STEM Equity, and a vibrant STEM Teaching and Learning Community that meets every two to three weeks.

Strength 3: Improved Cross-Campus Collaboration

UC Santa Cruz has created the infrastructure to sustain and grow interdivisional collaboration. Since 2020, with the launch of our Student Success Task Force, senior leaders from the academic and administrative divisions have strengthened ongoing collaborations and created new partnerships to support student success.

For example, new collaborations among faculty and staff in CITL, the Office of Institutional Research, Assessment and Policy Studies, and the HSI team have created public, internal, and systemwide dashboards, such as the example shown below, that bring timely equity data to individual faculty members and departments and that can be used by faculty to shape instructional practices.
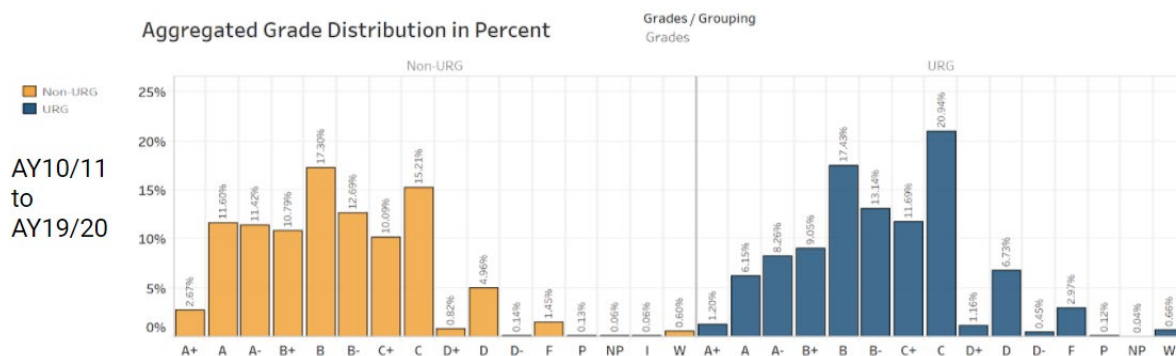
Making dashboard information actionable for faculty is a major focus of the newly appointed Special Advisor to the Campus Provost and Executive Vice Chancellor for Educational Equity and Academic Success. Faculty, departments, and divisions need preparation to interpret disaggregated equity data and accompanying informational resources to know how to improve equitable student outcomes. The campus sees the development of

Three measures of equity gaps

Passing vs. Non-passing
C or higher grade vs. C-, D or F

Competency
B or higher grade vs. B- or lower
(including C-, D, F)

Excellence
A- or higher grade vs. B+ or lower
(including C-, D, F)

this portfolio of resources as essential to ensuring that the dashboard data being produced can be translated from information into improvement in curricular and course design, and teaching practice. The Special Advisor is also working at the academic divisional level in collaboration with the Campus Provost and Executive Vice Chancellor and the Division of Student Affairs and Success, through the work of the Student Success Task Force, to develop an equity plan for each division centered around first- and second-year retention.

Collaborations with Information Technology Services (ITS) have also enhanced the teaching and learning experience in the physical classrooms, as the use cases in these spaces continue to evolve. An updated lecture capture service was deployed summer 2021 to 75 of 86 general assignment classrooms, providing UCSC instructors with the option to record in-class sessions and make them available to their students for asynchronous review. In anticipation of some students being unable to attend in-person instruction, large-screen video teleconferencing devices have been deployed in mid-size rooms where interactive participation in seminar-style instruction is common. Both services are integrated with our media management system, providing transcription, captioning, and a full-featured media player for an improved viewing and learning experience.

Strength 4: Regional Partnerships and Collaboration

UC Santa Cruz has developed and continues to leverage strong regional partnerships, some of which are highlighted in the Table under Strength 1 describing our HSI initiatives. Additional examples are highlighted below.

The NIH-funded Baccalaureate Bridge to the Biomedical Sciences Program (ACCESS) is a prime example of a long-term, successful, multi-institutional collaboration. ACCESS is a consortium involving biomedical scientists at UCSC engaged in partnership with four community colleges: Cabrillo College, Hartnell College, Monterey Peninsula College, and Gavilan College. This successful program began in 1994 and has touched the educational paths of approximately 7,000 students.

Supported by the NSF's Robert Noyce Teacher Scholarship Program, the Integrated Mathematics and Science Teacher Recruitment, Preparation, and Induction Pathway for the Central California Coast is a five-year project involving five regional high-need school districts, three California community colleges, Hartnell, Cabrillo, and San Jose City College, and science

and education faculty from UC Santa Cruz. The project team is refining and aligning teacher recruitment, preparation, induction, and retention processes to improve teacher effectiveness and retention in high-need school districts in the central California coastal region. The project provides scholarships to new STEM graduates or experienced STEM professionals to support the completion of the combined MA/teaching credential program at UC Santa Cruz.

In addition to our many collaborations with local community colleges, UC Santa Cruz has developed strong relationships with California State University campuses. Examples of those partnerships include:

The NIH-funded [Institutional Research and Academic Career Development Award (IRACDA) program](#) in Stem Cell Biology focused on blending a strong postdoctoral research experience with a scholarly approach to learning, teaching, pedagogical practice and mentoring. Through this program, the UCSC postdoctoral fellows conduct in-class observations, design their own lectures, teach those lectures in their CSUMB mentors' classes, and eventually design their own stand-alone course.

The [Genentech Foundation sponsored Academic Inspiration Network (GAIN)](#) provides mentoring support to CSUMB biology students by a UCSC postdoc including support with class material and advice on research and career options. Selected GAIN fellows complete a funded summer internship to work with a mentor on a research project in a UCSC laboratory.

One of our most recent collaborations is the $4.9 million [Training Program in Systems Biology of Stem Cells](#), a California Institute for Regenerative Medicine (CIRM) award. The program will support graduate students and postdoctoral fellows, and will focus especially on graduate students from historically excluded backgrounds who have studied at SJSU, CSUMB, CSUEB, and SFSU.

The [Okinawa Memories Initiative](#) is a collaboration between UCSC, CSUMB, CSUEB and the University of the Ryukyus that provides two-year cohorts of students in America and Okinawa the opportunity to connect, discuss and learn about Okinawan history, culture and contemporary issues through meaningful, experiential learning opportunities. By learning in the field, students participate in global historical understanding in ways they could never achieve in the classroom.

Challenges

Challenge 1: Student Basic Needs - a Holistic Approach

Academic success must be built upon a foundation that includes stability around basic needs, particularly food and housing. Our work in providing greater support for student housing in response to the Santa Cruz housing crisis is explored in more depth below. Our analysis of barriers to retention and graduation faced by undergraduate and graduate students include access to financial support (e.g. undergraduate financial aid and commitment of multi-year financial support for our doctoral and MFA students), mental health resources, and related basic needs such as food insecurity experienced by Pell, first-gen, and underrepresented-group (URG) students. Santa Cruz is working to address each of the identified barriers, some of which require partnerships with the UC system and the State of California.

Challenge 2: Santa Cruz Affordable Housing Crisis

The [housing affordability crisis in California, and in Santa Cruz specifically, is well documented](). This challenge affects students, especially graduate students, as well as faculty and staff, and the greater Santa Cruz community. It is a common thread in many of the challenges UC Santa Cruz faces. Limited and unaffordable housing complicates efforts in faculty and staff hiring and retention, and impedes our ability to enhance diversity, equity and inclusion, and support student success.

Though UC Santa Cruz houses over half of its undergraduates on campus, our campus housing capacity is insufficient to meet the needs of our students. The local off-campus housing market continues to be highly constrained, with vacancy rates between one and two percent since 2013. The current average monthly rental rate for a one-bedroom apartment is $2,300. The housing crisis shows no signs of abating. The loss of nearly 1,000 homes in the county to the CZU wildfire along with the increased location flexibility for workers in Silicon Valley has further exacerbated the problem, as many highly paid professionals choose to relocate to the Santa Cruz area.

UC Santa Cruz is responding to this urgent need by increasing housing capacity on campus through the renewal of Kresge College, one of our residential colleges. The project, nearing the completion of its first phase, is a mix of renovation and new construction that will increase available housing by around 500 beds. Student Housing West, which was re-approved by the UC Board of Regents last year, remains held up in litigation. Once built, this project will create 3,000 new beds with a net increase to campus housing of roughly 2,100 beds.

Looking to the future, we have committed through our 2021 Long Range Development Plan to provide housing for 100 percent of new, full-time residential-campus student enrollment above 19,500, and to build housing for up to 25 percent of new employees, based on demand.

The affordable housing crisis also affects our ability to recruit and retain faculty and staff. The [median single family home sale price]() in Santa Cruz County in 2021 was $1.2 million, while the median sales price for a condominium was $650,000. The average number of days on the market was 25, reflecting the low availability of housing stock. The difficulty in finding housing in Santa Cruz, coupled with the lack of transportation infrastructure, makes commuting from other Bay Area locations difficult. This housing challenge makes it acutely difficult to recruit and retain faculty and staff who are early in their careers.

In addition to our plans to build additional campus housing for employees, we are attentive to faculty and staff salaries as we strive to keep pace with the market. We take advantage of the [Mortgage Origination Program (MOP)]() to assist faculty with buying their first home and have partnered with a firm that helps employees who work in educational institutions purchase homes by providing up to $120,000 toward a down payment through a shared equity down payment program and by connecting employees to home-buying resources. While we are committed to pulling all available levers, the long-term solution to the housing shortage is to build more housing.

Challenge 3: Student-to-Faculty Ratio

Senate faculty are fundamental to the student experience. In addition to developing and delivering an innovative curriculum, these faculty create opportunities for deeper learning through research, creative scholarship, mentorship, and much more. These elements are critical in furthering student success as studies show that students who are involved in research, creative projects, and academic activities have a greater likelihood of remaining at the university and graduating in a timely manner.

As noted above, the ratio of students to Senate faculty at UC Santa Cruz for 2020-21 was 31.2. While it marks an improvement over the past several years, it remains well above the system average of 27.8. A higher student-to-faculty ratio translates to larger class sizes, fewer experiential learning opportunities, and a decrease in student interactions with faculty. This is one of the reasons why university leadership is prioritizing hiring an additional 100 Senate faculty over the next decade.

Challenge 4: Student Retention and Graduation Rates

The most compelling reflection of our institutional challenges are the internal and exogenous barriers that have hindered progress on UCSC's 2030 student-success goals. The figure below illustrates the equity gaps present in current six-year graduation rates for entering frosh.

6-Year, Frosh Graduation Rates
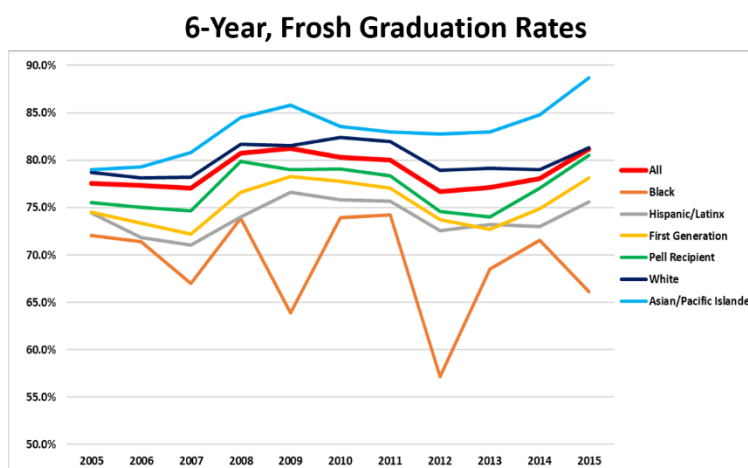
In recent years, overall one-year retention rates have declined from their 90 percent benchmark (for the 2015 and 2016 entering cohorts); however, the one-year retention for the most recent (2020) entering cohort has improved to 88.6 percent (compared with 92.1 percent UC-wide). These declines reflect the larger number of students who took leaves of absence (LOA) due to the pandemic and other disruptions. As was the case UC-wide, the data also show declines in first-year retention rates for Pell, first-generation and underrepresented groups who started during the remote instruction/pandemic period. These first-year continuation declines impact progress toward the campus goal to achieve 70 percent four-year graduation rates by 2030.

Similarly, one-year transfer retention rates declined from 93.2 percent (2015 cohort) to 88.2 percent (2020 cohort) compared with a decline from 92.9 to 91.2 UC-wide. Unfortunately, declines among Pell, first-generation. and underrepresented groups (URG) among transfer students have not rebounded (at either Santa Cruz or UC-wide). Two-year graduation rates for Santa Cruz transfers, however, increased from 55.9 percent (2015 cohort) to 57.7 percent (2019 cohort) compared with 57.6 and 62.8, respectively, UC-wide.

Opportunities

Opportunity 1: Scaling Targeted Support for Students

The campus has enhanced the data available in our Academic and Slug Success information systems to help advisers and student affairs professionals across campus more efficiently and effectively target support for students. Data-informed collaboration has facilitated deeper coordination of advising from across the residential colleges, academic divisions, and student services units. In 2020-21, student-serving staff in our residential colleges began using the system to help track intentional conversations with students and to connect to their advising colleagues in new ways. We believe this data-informed approach will continue to grow as a powerful tool for monitoring and supporting the impact of student-success initiatives.

The campus has also improved advising resource materials that students can access 24/7, and that advisers can use to help students create a four-year graduation pathway.

Opportunity 2: Expanding the Culture of Mentorship

To help UC Santa Cruz students navigate their return to campus and the ongoing impact of the pandemic, UC Santa Cruz partnered with Mentor Collective to launch the Slug Mentor Network. Supported by the Lumina Foundation, Mentor Collective forms partnerships with institutions that are committed to equity, inclusion, and relationship-centered education.

The Slug Mentor Network leverages research, services, and technology to expand mentoring programs to increase access to social capital and to simultaneously help students overcome the challenges of the university transition. The inaugural year of the Slug Mentor Collective has shown impressive results:

- 2,020 first- and second-year mentees
- 646 upper-division students registered as mentors
- 25,731 text messages exchanged
- 4,291 conversations logged

Opportunity 3: Expanding Summer Edge Fast-start Initiatives Supporting the Transition to College

UC Santa Cruz is expanding first-year initiatives to ensure that our newly admitted students are familiar with the tools Santa Cruz provides and are positioned for early success in their college careers. The campus offers programs for multiple cohorts (e.g., frosh/first-year students, transfer students, international students). Students in First Year Edge, for example, are enrolled in summer session for seven credits (i.e., a five-credit class of their choice and the two-credit course Navigating the Research University); live in a summer residence hall with other newly admitted students; and have the support of a core group of Peer Mentors and Resident Assistants. Other fast-start initiatives include block scheduling to support cohort groups, scalable career readiness, and improvements to major-field advising. Clearly articulated major field course pathways are designed to reduce time-to-degree and include three-year pathways that enable students to reduce the cost of obtaining their undergraduate degree. Our success in growing three-year graduation rates from 2.0 percent for students who entered UCSC in 2010 to 8.2 percent for the 2018 cohort, as shown in the figure above, is the result of an intentional, multi-year, campuswide approach to designing three-year pathways that do not assume heavy course loads or pre-admission college level credit.

3-Year, Frosh Graduation Rates
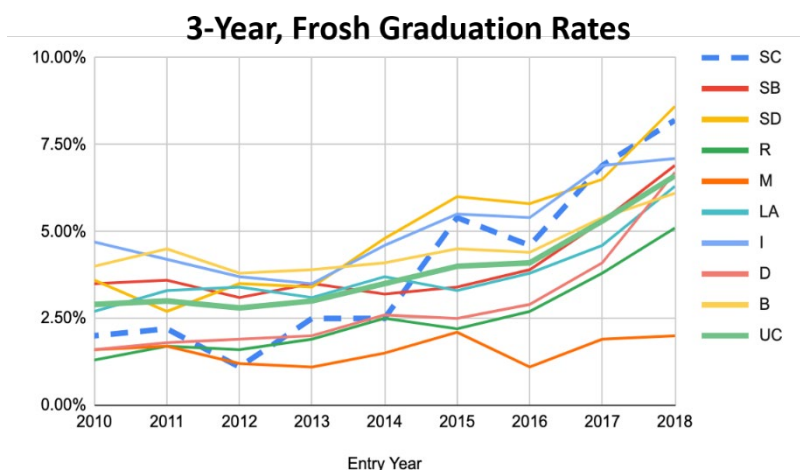
Opportunity 4: Strengthening Graduate Programs

Graduate student success is closely related to undergraduate student success and strong graduate programs that support research, undergraduate engagement, and promote good career outcomes are crucial to achieving all of our campus goals. Our graduate community is about 2,000 in size and includes 123 postdoctoral scholars. UC Santa Cruz currently enrolls 1,520 Ph.D. and 458 master's candidates in 41 academic fields and 57 concentrations.

To strengthen graduate programs, we recently established five-year funding packages for entering doctoral students (two years for MFAs) to attract and retain qualified candidates. The campus also provides annual housing stipends of $2,500 to all Ph.D. and MFA students. and in the summer of 2021 rolled out a set of comprehensive enhancements for graduate students that include reduced parking fees and elimination of some convenience fees. We have also improved our support structures, for example by adding a graduate-student case manager to connect students to basic needs and a legal consultation program for off-campus housing issues. These services were developed in response to a set of listening sessions with each graduate program conducted by campus leadership in winter and spring 2021.

Beyond direct economic support, our Graduate Division is leading a new Inclusive Excellence Initiative in Graduate Education focused on improving recruitment and retention, improving

mentorship, enhancing diversity and inclusion, and supporting diverse career outcomes for graduate students.

Opportunity 5: Increase Philanthropy Efforts Focused on Student Success

UC Santa Cruz launched its Student Success Initiative in October 2021 to increase financial support and strengthen programs for undergraduate and graduate students. This five-year fundraising initiative has three overarching priorities: to reduce financial barriers, to help students navigate university life, and to expand access to opportunities available beyond the classroom. The initiative so far has raised more than $10 million and will help seed the university's next comprehensive fundraising campaign to be launched publicly in the coming years. Additionally, the UC Santa Cruz Foundation Board of Trustees recently voted to increase its endowment payout this year by more than $900,000 of additional financial support for students directed through approximately 130 endowment-funded scholarships and fellowships. This represents a one-time 50 percent increase over what it provided in the fall to all UCSC endowments. The foundation's endowment distribution policy is designed to smooth over the highs and lows of annual market volatility; however, FY21 results were distinctive and unprecedented. While the foundation's primary focus is on providing long-term resources for the university, the board also acknowledged that there is real need now among our students. The board saw an opportunity to show additional support now by directing a small portion of the extraordinary returns that the endowment received in 2021 to further support students. No other UC foundation has made such a similar decision.
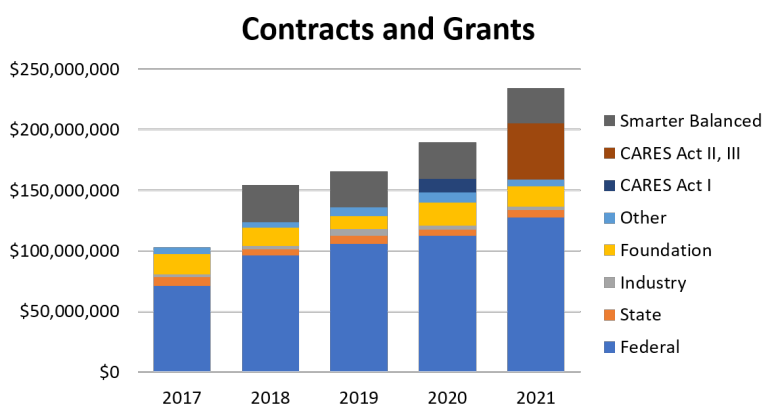
GOAL 2: ELEVATE RESEARCH PROFILE AND IMPACT

We aim to elevate our research profile and increase the impact of UC Santa Cruz research by expanding on areas of existing research excellence while focusing on major global challenges. One element that distinguishes UC Santa Cruz is its support for bringing together talented researchers from diverse fields of exploration and creativity to address the most important problems facing society. We have found that cross-disciplinary connections lead to the development of practical solutions to pressing social, environmental and economic challenges. Key areas of interdisciplinary strength include coastal climate resilience, global and community health, sustainable agriculture, humanistic approaches to understanding technology's impact, and the intersection of theater arts and game design. Building research strength helps to attract new students and talented faculty, marshals funding resources, and helps create industries of the future, thus supporting each of our campus strategic goals.

Though we have only around 600 Senate faculty, UC Santa Cruz research has an outsized impact on the world. The 2021 Highly Cited Researchers list includes 20 UC Santa Cruz scientists and engineers, an impressive showing for a relatively small faculty. This list recognizes the most important researchers in their fields over the past decade, demonstrated by the production of multiple highly cited papers that rank in the top 1 percent by citations.

Strengths

In fiscal year 2020-21, UC Santa Cruz secured $234.3 million in external funding for contracts and grants, a 23.4 percent increase over fiscal year 2019-2020. A deeper look at data going back to fiscal year 2016-2017, highlighted in the figure below, shows 150 percent growth in research contracts and grants over the past five years. Most of this increase can be attributed to greater numbers of awards from federal funding agencies, such as the National Institutes of Health (NIH), National Science Foundation (NSF), and the National Oceanographic and Air Administration (NOAA).

These achievements and growth in funding are a result of the commitment by the UC Santa Cruz research community to develop relevant and actionable responses to technical and societal challenges, address opportunities in human health, and gain fundamental understanding of the world around us. Research and creative work is a major driver of workforce development, providing opportunities for trainees (undergraduate and graduate students, and postdoctoral scholars) to prepare for critical challenges of the future. The following are examples of our research excellence:

Strength 1: Science and Policy to Address a Changing Environment

Agroecology: Research focuses on an integrative study of the entire food system, encompassing ecological, economic and social dimensions. Driven by the work of our Center for Agroecology, the aims are to advance agroecology and equitable food systems through experiential education, participatory research, agricultural extension, and public service. The focus on sustainable agriculture is exemplified through research funded by the U.S. Department of Agriculture (USDA), NSF, and UC Agriculture and Natural Resources (UCANR) to study organic soil pathogen control in strawberries; organic, no- and limited-till agriculture; insect diversity and ecosystem services in urban agroecosystems; and ecological aquaculture.

Climate Change and Sustainability: Researchers across all five of our academic divisions are working to understand, represent, and influence the drivers and impacts of climate change over time and space. One area of focus is coastal climate change, building resilience and sustainability in the face of growing coastal hazards. Further examples include elemental and isotopic analysis and modeling of Earth's past, present, and future biogeochemical environments (NSF); conducting fieldwork critical to understanding ecological changes and interactions with human systems to inform policy (NSF, Office of Naval Research, other state and federal agencies, private foundations); examining the impacts and governance of emerging technological approaches to climate change such as geoengineering (Carnegie Foundation); testing nature-based coastal mitigation and adaptation strategies (UCOP, U.S. Geological Survey (USGS), The Nature Conservancy, World Bank, AXA); investigating the interacting social and physical systems producing risk at the Wildland Urban Interface; and environmental art, science, and

technology collaborations that facilitate communication and creative responses (private foundations).

Marine Science and Policy: Ocean health and coastal sustainability are critical national and international issues, and UC Santa Cruz is an internationally recognized hub for marine research, policy, and education. For example, the elephant seal research program at our Institute of Marine Sciences is one of the longest running studies of any animal and continues to push boundaries; a Packard Fellowship and Beckman Young Investigator Award will support Roxanne Beltran's research using migrating elephant seals as "smart sensors" for monitoring ocean ecosystems. The innovative graduate program in Coastal Science and Policy (CSP) engages practitioner partners and prepares future leaders to solve current and emerging challenges to coastal sustainability. CSP also hosts the Blue Pioneers Accelerator Program (supported by Packard) an international training program that similarly focuses on practical solutions to complex marine conservation and sustainability challenges. In addition to private foundations, marine researchers are supported by a wide range of state and federal agencies and conservation organizations. The California Department of Fish and Wildlife (CDFW), NOAA, the National Marine Fisheries Service (NMFS), and USGS all have facilities on or near our Coastal Science Campus; cooperative agreements and MOUs support research on fisheries ecology; anthropogenic impacts on sea otters and other marine wildlife and ecosystems; marine geology, geophysics, and oceanography; and coastal hazards, informing policy and decision making.

Strength 2: Technology-driven Solutions

Astronomy and Astrophysics: UC Santa Cruz faculty are world-renowned leaders in astronomy and astrophysics. With funding from the National Aeronautics and Space Administration (NASA), NSF and private foundations, our scientists have designed new pathways for observational discovery from Earth and space and used computational analysis and visualization to study merging black holes, exploding stars, and the formation and evolution of galaxies. UCSC launched and leads the field of adaptive optics, critical in allowing astronomers to correct the blurring effect of turbulence in the Earth's atmosphere. A new NASA-funded Initiative in Astrobiology, led by Presidential Chair Natalie Batalha, builds on these tools to study the origin, evolution, and distribution of life in the universe. The Santa Cruz Institute for Particle Physics (SCIPP) is recognized as a leader in the development of custom readout electronics and silicon sensors for state-of-the-art particle detection systems including for the Large Hadron Collider.

UC Santa Cruz plays a leadership role for UC system astronomy research by hosting the University of California Observatories (UCO). UCO operates the Lick Observatory, technical labs at UC Santa Cruz and UCLA, and serves as the managing partner of the Keck Observatory in Hawaii.

Cyber Physical Systems (CPSs): CPSs combine digital and analog devices, interfaces, sensors, networks, actuators, and computers with the natural environment and with human-made objects and structures. Over 30 researchers affiliated with the Cyber-Physical Systems Research Center (CPSRC) conduct collaborative research on three main themes: autonomous systems, human sensing, and interconnected things. Through research funded by the Air Force Office of Scientific Research (USAFOSR), NSF, the Defense Advanced Research Projects Agency (DARPA), and other federal and industry sponsors, more than 30 affiliated researchers work to advance communication, control, and security of unmanned aerial vehicles (UAVs), robots, self-

driving cars and other autonomous systems; biomedical sensor networks, human-computer interaction, and assistive technologies for individuals with disabilities or special needs; and the distributed sensing, communication protocols, computing, and human-computer interaction that support traffic prediction and routing, smart cities, distributed power systems, and software-enabled appliances, among other applications. CPSRC serves as the umbrella for three UCSC research clusters conducting cutting edge research pertaining to aerial vehicles, the Internet of Things, and self-driving cars.

Data Storage and Open Source Software*:* A strong collaborative effort among academic researchers and industry is using combinations of new technologies and advanced algorithms to improve the usability, performance, scalability, security, and reliability of information storage. Analogous to data storage, this program focuses on creating open source software strategies with graduate-level research in a concentrated environment of mentorship and industry engagement. These programs are supported as Industry-University Cooperative Research Centers (I/UCRC) with significant industry funding.

Games and Playable Media: A unique fusion of engineering and art, computer games are a growing global phenomenon, driving technological and cultural innovation. The study of games offers the opportunity to blend creativity and personal expression with technical development to tackle challenging engineering, social, and design problems. Consistently ranked among the top game design programs in the world, the programs at UC Santa Cruz offer a variety of paths for students interested in games, which is a rapidly growing career opportunity. In addition to traditional games, the intersection of art and technology is at the frontier of using technology in other fields, such as supporting people with disabilities or people recovering from injury. As an example, with funding from the NSF, the Assistive Socio-technical Solutions for Individuals with Special needs using Technology (ASSIST) project aims to help people with special needs maintain a high quality of life.

Strength 3: Leadership in Biomedical Sciences

Genomics*:* UCSC's history in genomics goes back to 1985, when faculty played a visionary role in establishing the human genome project. Since then, there has been further groundbreaking work on new sequencing technology, open-source software, and applications in the genomic sciences with implications for human health and species conservation. During the COVID pandemic, Assistant Professor Russ Corbett-Detig developed an approach, with CDPH funding, that allows public health officials to use genomic data to identify how a virus evolves, and then where and when its variants spread in an outbreak. While developed for the current pandemic, the tools will allow researchers to understand viral evolution more generally. Another area of innovation is the Paleogenomics Lab, which focuses on a wide range of evolutionary and ecological questions, applying genomics techniques to better understand how species and populations evolve over time.

The fast-paced changes in availability of genomic and other biodata raise new social and ethical questions. The Science and Justice Research Center seeks to map responses to the profound questions revolving around science and justice that stand before us as we enter the brave new world of biomedical big data, raising questions such as: What happens to trust in medicine and patient outcomes when data portals, not doctors, deliver health information? What challenges arise when health data is used to understand risk for disease today, but is used in lawsuits or

national security investigations tomorrow? With funding from the NIH and private foundations, this work helps provide a framework for ethical genomic research.

Infectious Disease: UC Santa Cruz faculty are developing novel approaches to treat infectious diseases by understanding the molecular mechanisms of pathogenesis and developing new diagnostic and therapeutic approaches for infectious agents. Projects include identifying new agents to disrupt bacterial biofilms, new rapid methods for viral detection, and promoting microbiome health. One specific NIH-funded project, led by Professor Vicki Auerbuch Stone, aims to inhibit the secretion systems required for bacterial virulence. This research takes advantage of UCSC's chemical screening facility that recently received a $2 million grant to modernize drug-discovery instrumentation. This area of research is a core aspect of the campus Global and Community Health Initiative.

RNA Biology: The Center for Molecular Biology of RNA is the largest and most prominent group of RNA researchers in the world, with 20 RNA research groups, three members of the National Academy of Sciences, a Nobel laureate and a Breakthrough laureate. A comprehensive approach to understanding the structure and function of RNA is driven by significant NIH funding. A new initiative, the Center for Open Access Splicing Therapeutics (COAST) focuses on numerous inherited diseases that arise from RNA biology; faculty are seeking ways to accelerate the discovery of therapies by studying RNA structure-function relationships.

Strength 4: Innovative Solutions to Social Challenges

Community-Engaged Research: As a public institution, UC Santa Cruz conducts research and teaching in partnership with non-academic agencies and organizations in the local community and region, the state, across the country, and even internationally. These partners include public agencies, nonprofits, multi-sector collaboratives, and other community entities. Such community engagement is a core component of our mission and vision and has led to partnerships in a range of concerns, including youth, citizenship, health, belonging, social media impacts, and economics. A large percentage of the community-initiated and driven research involves underrepresented and first-generation students working in their home communities. An example is a [collaboration funded by the W.T. Grant Foundation](#) between UCSC faculty and the United Way to support youth empowerment and leadership programs in Santa Cruz County.

Humanities: A wide range of groundbreaking research in philosophy, history, language, and literature helps us understand contemporary challenges of many kinds. Examples of high impact work include; [SEACoast](#), a project funded by the Luce Foundation to examine interactions with the coastal regions in South East Asia and their historical adaptations to environmental changes, and a [National Endowment of Humanities funded project](#) for creating and piloting a Humanities certificate for engineering students.

Social Change: Research is driven by the creation of digital tools, visual, theatrical, and musical arts, and social entrepreneurship skills to advance social justice and promote sustainability. Throughout the COVID-19 pandemic, faculty members affiliated with the [Institute for Social Transformation](#) have been at the forefront of understanding how technological innovation impacts different demographic groups, particularly historically marginalized groups. One example is the Human Rights Investigations Lab, which rigorously trains students to track and monitor ongoing humanitarian, environmental and socio-political crises throughout the Americas

by using open source investigative methods to promote justice and achieve accountability for communities adversely affected by human rights violations.

Challenges

Challenge 1: Limited Research Space and Facilities Hinder Growth of Research Opportunities

The ability to grow research programs (particularly in engineering, biomedical, environmental and physical sciences) are constrained by the availability of space. Efforts to address space utilization and adopt best practices are important but will only provide modest increases in spaces for cutting edge research.

New research facilities in environmental, biomedical and materials sciences and engineering are needed to continue growth in contract and grant funding to facilitate new discoveries and provide research opportunities for undergraduate and graduate students. As solutions to complex, large-scale problems in these disciplines are increasingly collaborative, there needs to be a focus on new research spaces that combine the expertise of scholars from multiple fields, and are adaptable to changing needs.

Challenge 2: Increased Demand for Research Computing Support

Access to significant computing power is becoming a necessity across all disciplines, as faculty in the humanities, arts and social sciences are becoming high-performance computing users, joining colleagues from more traditionally computation-intensive fields in physical and biological sciences and engineering. There is also a growing need for storage of increasingly larger data sets and the ability to make data open-access to conform to new funding agency policies.

To address this challenge, our Information Technology Services division (ITS) is a strategic partner with the campus research community. Current efforts are focused on the development of shared services for research; shared governance for the effective management of campus research-oriented resources (e.g. the Colocation Facility, campus research network, Hummingbird campus computing cluster); providing expert-led training in the use of advanced computing, data collaboration and curation, advanced software and data workflow development; and additional staff experts in digital humanities, technical systems administration and research-coupled graduate education.

One major enhancement is the off-site [Colocation Data Center](#), a facility with flexible research computing capacity designed to meet UC Santa Cruz's future demand growth. This facility offers both physical and virtual server hosting services within a secure environment to increase system availability and uptime. The amount of space and power is scalable, and it also improves resiliency and business continuity for the campus. The facility is designed to further our progress toward the UC Carbon Neutrality goals by utilizing hydroelectric generated power. This resource is currently available to the UC Santa Cruz research community and will also be utilized by Information Technology Services (ITS) managed servers.

Challenge 3: Adequate Support for Graduate Programs and Students

Just as they are crucial to undergraduate student success, graduate students contribute significantly to our research enterprise. As mentioned above and like many of the coastal-based UC campuses, UCSC faces challenges marshaling sustainable levels of financial support for doctoral students, driven largely by the affordable housing crisis. On-campus housing for graduate students is limited, forcing the vast majority of our graduate students into the costly external housing market. The five-year funding packages and annual housing stipends introduced in fall 2020 are intended to bring security to our doctoral students; sustaining these packages at a level that is adequate in the face of very high housing costs is a real challenge and one that has implications for the future size of our graduate programs.

Opportunities

As noted above, expanding our faculty, with an eye toward areas of potential research growth, will be a key element of advancing our research profile and impact. The planned faculty growth combined with the recruitment of new faculty members into vacancies created by retirements and other separations will strongly contribute to the expansion of our research enterprise. New questions, perspectives, and methodological approaches will be addressed by an even more diverse faculty and will present a tremendous opportunity to explore innovative solutions to the world's greatest challenges and advance new research paradigms.

Opportunity 1: Focus on Continued Growth of Extramural Research Funding Through Collaborative Initiatives

UC Santa Cruz research is on a positive trajectory in the impact of the scientific and creative contributions and the growth of external funding. These research achievements reflect the creative commitment of the UC Santa Cruz research community to address challenging interdisciplinary problems. The campus is home to a number of major collaborative research centers, such as the Genomics Institute and Institute for Marine Sciences that drive large-scale research grants. To spur new collaborative initiatives, a 2020 seed-funding program invested $400,000 to support the launch of new research collaborations. These included:

Astrobiology Initiative. This program, led by Natalie Batalha, is studying the origins, evolution, and distribution of life in the Universe. This program brings together astronomers, chemists and humanists to address questions beyond the technical and scientific realms, probing our understanding of life itself. This initiative has been funded by NASA's Interdisciplinary Consortia for Astrobiology Research.

Center for Open Access Splicing Therapeutics (COAST). COAST brings together the long history of excellence at UC Santa Cruz in the study of ribonucleic acid (RNA) by pushing into the new direction of therapeutic development. There is a significant unmet need for equitable discovery and accessibility of cost-efficient therapies for patients with rare diseases. The mission of the COAST is to accelerate the discovery of precision therapies for rare diseases by exploiting the chemical language of RNA. This initiative integrates issues of bioethics, access to therapy and a focus on rare diseases. This program has fostered collaborative relationships between scientists at UC Santa Cruz and clinicians at UC San Francisco.

Center for Cyberphysical Systems. This effort, led by Professor Ricardo Sanfelice, is generating new fundamental science for cyber-physical systems that enables accurate, safe, and high-performance control of intelligent transportation systems. This center has been recently awarded a Defense University Research Instrumentation Program award from the Air Force Office of Scientific Research to translate the initial stage discoveries into practice.

Addressing Coastal Resilience in the Face of Climate Change: Sitting on the edge of the Monterey Bay and the Monterey Bay National Marine Sanctuary, UC Santa Cruz is nationally recognized for its marine science and coastal sustainability research and education, including innovative approaches, such as the Coastal Science and Policy program. We are uniquely situated to study coastal resilience and climate change. The coastal zone, where most of California's population lives, is where some of the most significant impacts of climate change will be seen. For example, sea-level rise and storm surges will inundate many low-lying regions of the state, disrupting established communities and creating widespread socio-economic challenges. Changes in precipitation patterns are further straining an overtaxed water system, which is placing people and biodiversity at risk. The California Current is one of the most diverse, productive, and species-rich ecosystems on the planet. While the impacts of climate change have been predicted, recent changes in weather patterns have brought a heightened awareness of the challenges the state faces. UC Santa Cruz is at the forefront of addressing these local and regional issues relevant to coastal resilience that will have an impact on California and coastal communities all over the world.

UC Santa Cruz administers four of the 41 UC Natural Reserve sites set aside for research, teaching, and outreach. The four UCSC reserves ring the Monterey Bay along with the National Marine Sanctuary that extends along the entire coastline from the Golden Gate at San Francisco south to Big Sur. The wide range of habitats, from the fog-enshrouded redwood forest to maritime chaparral, provide an unparalleled natural laboratory for marine and terrestrial research and are ideally suited as study sites for studies focusing on Coastal Resilience.

Opportunity 2: Expand Research, Education and Outreach in Agroecology

For over 50 years, UC Santa Cruz has been a leader in sustainable organic agriculture. Our farm and the UCSC Center for Agroecology continue to have an outsized impact by training students and visitors in the field of agroecology. Our research, funded by the USDA, NSF and UC's Division of Agriculture and Natural Resources (UCANR), has largely focused on the farming methods, crops and challenges of the central coast region, extended recently to include sustainable aquaculture and urban agroecosystems. The focus of our campus is very different from agriculture practiced in the central valley and southern California, and fills a unique niche within the UC system. UC Santa Cruz and UC Merced have indicated our desire to join Berkeley, Davis and Riverside as designated Agricultural Experiment Station (AES) campuses. The AES designation would allow Santa Cruz and Merced to compete for additional USDA funding and would help us play a larger role in agriculture education, research and outreach within our regions and the state.

Opportunity 3: Advance Innovation and Entrepreneurship at UC Santa Cruz

Promoting the translation of discoveries into useful products, services and contributions to policy decisions is another key aspect of the research landscape. The UC Santa Cruz Innovation and Business Engagement (IBE) Hub was established in 2021 to accelerate this translation work. The

IBE Hub is designed to build a comprehensive ecosystem with corporate, industry and innovation partners broadly across UC Santa Cruz. The primary goals of our business engagement effort are to develop and facilitate deeper connections between UC Santa Cruz, industry, alumni, and the community to:

- Identify and secure funding to support corporate collaborations.
- Develop and expand corporate sponsorship and philanthropic opportunities for undergraduate, graduate, and postdoctoral students.
- Build and expand a network of entrepreneurs and industry contacts and other partners to support UC Santa Cruz's efforts in innovation and entrepreneurship. UC Santa Cruz intellectual property has been the driver of new start-up companies and integral to technological advancement, such as in Oxford Nanopore sequencing technology.
- Build on innovation and entrepreneurship (I&E) opportunities at UC Santa Cruz Silicon Valley Center and MBEST. Programs involving QB3 and CITRIS are currently under development that will leverage the rich innovation ecosystems and provide opportunities for our undergraduate and graduate students. This builds upon the work of the Center for Innovation and Entrepreneurial Development (CIED), that promotes the development, research, and teaching of innovation and entrepreneurship at UC Santa Cruz and its global partners. Examples include communitywide events, including the annual competitions Slug Tank, CruzHacks, the Business Design Showcase, and the IDEA Hub's Pitch for Social and Creative Enterprise.

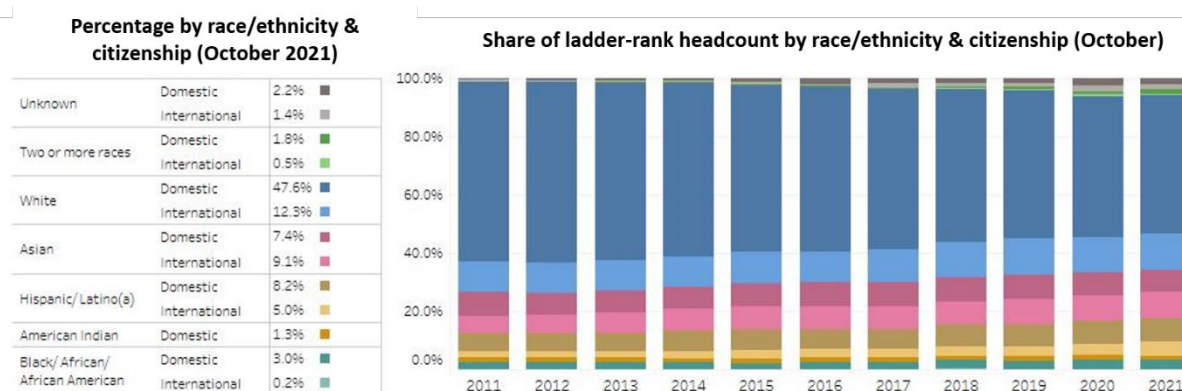## GOAL 3: FOSTERING AN EQUITABLE, DIVERSE AND INCLUSIVE CAMPUS

UC Santa Cruz is committed to increasing diversity in every form, ensuring equitable access to all the university offers, and creating a campus where everyone feels they belong. As a leading public research university, UC Santa Cruz strives to reflect the makeup of California, one of the most diverse states in the country. Being part of a diverse and inclusive community prepares our students to thrive and become state, national, and global leaders.

Strengthening and broadening our diversity, equity, and inclusion efforts is critical to the success of our campus in addressing our goals of advancing student success and increasing our research profile and impact. The benefits are many, including a positive campus climate, improved racial and cultural awareness and competency, enhanced critical thinking, and equitable access to higher education.

Strengths

Strength 1: Progress in Diversifying the Faculty

Over the past ten years, our Senate faculty has gone from 12.6 percent to 17 percent under-represented minority (Hispanic/Latinx, Indigenous, or Black), as shown in the figure below. This progress is the result of intentional efforts that consider contributions to diversity statements and other inclusive hiring practices that have been shown to be effective in producing diverse candidate pools at each stage of the hiring process.

Percentage by race/ethnicity & citizenship (October 2021)

Unknown	Domestic	2.2%
	International	1.4%
Two or more races	Domestic	1.8%
	International	0.5%
White	Domestic	47.6%
	International	12.3%
Asian	Domestic	7.4%
	International	9.1%
Hispanic/ Latino(a)	Domestic	8.2%
	International	5.0%
American Indian	Domestic	1.3%
Black/ African/ African American	Domestic	3.0%
	International	0.2%

Share of ladder-rank headcount by race/ethnicity & citizenship (October)

This work has been facilitated by the participation of UC Santa Cruz in six Advancing Faculty Diversity grants administered by the UC Office of the President, which have funded a range of initiatives:

- The Faculty Community Networking program, which provides support groups for Black faculty, AAPI faculty, Indigenous scholars, Latinx faculty, women faculty in STEM, and faculty with disabilities and chronic illness;
- The project on Faculty of Color and Leadership, describing what leadership looks like to faculty of color and what barriers exist for getting more faculty of color into campus leadership;
- A pilot program for faculty searches to perform first-round screening based only on the statements of contributions to diversity, equity, and inclusion, which helps highlight candidates with strong contributions and brings a new perspective to the search process, improving inclusive hiring;
- A collaborative project with UC Merced, involving a major literature review of national faculty research on inclusive hiring and development of communications on best practices for inclusive hiring;
- A collaborative project with UC Merced to establish an Equity Advocates program at UC Santa Cruz and to strengthen the Equity Advisors program at Merced;
- And a collaborative project with UC Riverside and UC Davis to perform a statistical analysis of possible bias in teaching evaluations, including an analysis of whether the change in the wording of the questions at UC Santa Cruz had the intended impact of reducing bias against women and faculty of color.

We have used the opportunities to pilot innovation through the Advancing Faculty Diversity initiative to then institutionalize successful programs. The first grant for the Faculty Community Networking program, was leveraged to create one of the most robust faculty-support group projects in the system. We leveraged the third grant to be the only campus to institutionalize first-round screening centered on the statement of contributions to diversity, equity, and inclusion. We intend to leverage the fifth grant (which is in its first year) to establish a forward-facing Equity Advocates program, creating a network of those promoting DEI actions in every department.

Strength 2: Faculty Community Networking Groups

As noted above, the Faculty Community Networking program provides support groups for Black faculty, AAPI faculty, Indigenous scholars, Latinx faculty, women faculty in STEM, and faculty with disabilities and chronic illness. These groups meet monthly, over lunch when possible,

providing a safe space for faculty to share their concerns, experiences, and advice, and to come together to advocate for their group with campus leadership. Groups have produced reports describing the issues faced by members of their group and recommendations for improving the campus support.

Strength 3: Realigning Campus Structures for Compliance and Diversity, Equity, and Inclusion

In 2019, UC Santa Cruz separated the campus "compliance" functions and "climate" functions into two distinct offices reporting to the Chancellor to both strengthen efforts to advance diversity, equity, and inclusion, and streamline campus responses to complaints. This required co-locating existing campus compliance organizations into a single campus Equity and Equal Protection (EEP) Office. The office is responsible for the administration of UC Santa Cruz's policies and procedures regarding discrimination and harassment on the basis of race, religion, disability, sex, gender, age and other protected identities, and it is comprised of the Title IX Office, the Equal Employment Opportunity and Affirmative Action Office, the UCSC ADA Program, and the UCSC Whistleblower Program. This office is composed of 16 FTE to support comprehensive case management, a "no wrong door" policy for compliance issues and ensure that intersectional discrimination is managed fully.

Prior to 2019, the Office of Diversity, Equity, and Inclusion supported both climate and compliance functions, but as a newly stand-alone unit, the office can now focus on the important, proactive work of fostering a positive campus climate. The office is strengthening its network of campus partners taking seriously its philosophy that real change requires campus-wide collaboration. The Office is developing foundational materials to support strategic planning efforts and serves as a hub for community DEI initiatives.

The Diversity and Inclusion Certificate program is offered by the Office of Diversity, Equity and Inclusion to provide faculty, staff, and graduate student participants with an in-depth examination of diversity and differences to enable them to more effectively work and lead in a multicultural, diverse environment. Since 2011, 568 people have graduated from the program. In 2020, due to the pandemic, the courses moved to a virtual platform to allow greater accessibility to participants working remotely. In addition, this academic year the office implemented quarterly meetings for facilitators and will host a summer retreat to learn about best practices in DEI training; strengthen the curriculum; and develop a facilitator cohort to support continuous improvement of the program.

Challenges

Challenge 1: Historical Underinvestment in DEI and Compliance

Though UC Santa Cruz has a strong commitment to diversity, equity and inclusion, many of our structures to support a positive campus climate are still developing due to a long period of underinvestment in institutional infrastructure to promote and maintain equity and diversity. As mentioned above, prior to 2019, compliance offices were collapsed within the office tasked with promoting a diverse climate and a very small number of staff members were responsible for a large body of work resulting in critical gaps, a traditional symptom of an underdeveloped diversity-support structure. Pre-2019 the entire staff focused on both climate and non-Title IX compliance issues included only 5.25 FTE, including the Associate Chancellor.

Recovering from this long-term lack of investment and strategy is a significant process. We are currently building our Office of Diversity, Equity and Inclusion (ODEI) while we recruit our first Vice Chancellor for Diversity, Equity, and Inclusion. The ODEI is headed by an executive director and has two staff members (and one position in recruitment). As we strive to support this important work, ODEI has been allocated two additional FTE, including the new Vice Chancellor position. A scope of responsibility and a strategic plan for the office are in development.

Challenge 2: Rebuilding Student Affairs and Success

Preparation to support holistic campus-climate work has been underway in a number of areas where UC Santa Cruz has had gaps, consistent community concerns, or other weaknesses. The organizational changes described above reinforce and are part of the larger reorganization that has recreated a Division of Student Affairs and Success in July 2020 after the Student Affairs division was dismantled in 2011.

The lack of a traditional division of student affairs has coincided with strong feedback and advocacy from students about limitations in the overall support they receive compared with the experiences of other students at peer institutions or their personal experience prior to transfer. This frustration has been amplified by the challenge of scaling effective student support as the campus enrollment has grown due to so many siloed but duplicative services.

The Division of Student Affairs and Success is currently still rebuilding with a vision for comprehensive student support aimed at equitable outcomes for all students. This rebuilding work includes the recent hire of a Vice Chancellor to lead the division, an emphasis on accountability and assessment of the efficacy of programs, opportunities for staff development, and most importantly, prioritization of student engagement and well-being.

Part of our plans to build future-facing organizations rather than simply reconstituting old structures is an investment in external reviews to assess weaknesses and gaps in our structures and processes. For example, the Division of Student Affairs and Success completed a review of our student conduct process in the 2020-21 academic year and are now working to implement the recommendations, which include greater use of restorative- justice practices, and we are exploring the structure and additional resources needed to support this work.

Challenge 3: Limited and Siloed Resolution Services

Similarly, UC Santa Cruz had an ombuds office that was closed in 2012 due to budget reductions. For a time, the office overlapped with the current Office of Conflict Resolution Services, which was established in 2009 and fulfills many of the roles that fall under an ombuds at other UC campuses. In January, the campus hosted a review by three UC system ombuds to explore how we might strengthen our resolution services and climate-support systems. We are currently evaluating whether we should establish an ombuds office and how to best organize, align and appropriately staff offices that support our conflict resolution, ombuds-style services, informal resolution and restorative justice efforts. We know, however, that the resolution landscape on the campus has been complicated for the community to navigate and does not currently provide sufficient options.

Opportunities

Opportunity 1: Further Increase Faculty Diversity

As discussed earlier, our faculty growth plan will provide UC Santa Cruz an unprecedented opportunity to increase the diversity of our faculty. With 100 new faculty positions and an anticipated 200 to 250 new hires due to retirements and separations, we have set a goal of achieving gender parity and at least 25 percent representation of Hispanic/Latinx, Black and Native American faculty within the next decade. As described in our strengths, we are well on our way to this goal, and have already adopted recruitment strategies known to increase diversity in faculty hiring. Building on the opportunities described below, our strategic campus planning process will leverage research areas and search strategies like cluster hiring, that are established mechanisms to expand the diversity of faculty search pools.

Opportunity 2: SEA Change

SEA (STEMM Equity Achievement) Change is an AAAS initiative to target STEMM (STEM + Medicine) fields in colleges and universities so that they can exemplify excellence, equity, diversity, and inclusion. UC Santa Cruz became a charter member of SEA Change in March 2021 and starting in early fall 2021, has been actively engaged in the extensive and in-depth process involved in applying for a SEA Change Bronze Award. The Bronze Award is the first in a series of awards that recognize institutions for their commitment to long-term, sustainable DEI transformation through self-assessment. As of late fall 2021, UCOP has initiated a discussion about UC-wide participation in SEA Change; UC Santa Cruz was one of only three UC campuses able to share their ongoing experience with this important AAAS initiative.

We are currently on track to apply for the Bronze Award in fall 2022, and will be using the Change framework to increase the impact and synergy of existing DEI initiatives, as well as develop strategic new DEI initiatives.

Opportunity 3: Develop a Diversity, Equity and Inclusion Strategic Plan

As UC Santa Cruz addresses our DEI challenges and delivers on our opportunities, we must approach our efforts to advance diversity, equity and inclusion through a strategic plan that will lay the groundwork for structures, programs and accountability to drive our progress over the next decade. As we work in the coming year on a campus strategic plan, development of a diversity, equity and inclusion strategic plan will be a critical pillar of that process. An advantage of this approach is that diversity, equity and inclusion will be integrated into the strategic plan and vision for the campus in 2032, rather than developed through a more siloed, stand-alone process.

GOAL 4: IMPROVE EFFICIENCY, EFFECTIVENESS, RESILIENCE AND SUSTAINABILITY OF OUR OPERATIONS

UC Santa Cruz strives to increase its operational efficiency and effectiveness to maximize the impact of our financial resources, while also seeking to minimize our environmental impacts and carefully steward valuable natural resources. Our strategic approach has been to identify, develop, and facilitate opportunities to enhance our work environment, build resiliency, and

improve operational sustainability while reducing costs. We are working to create an effective and efficient work environment optimized for employee engagement and contribution.

Modernizing and streamlining campus administrative functions supports the university's academic mission and our goals. The continuing advancement of technology, coupled with the disruption caused by the COVID-19 pandemic, has required a rethinking of many campus processes, often revealing quicker and easier ways to accomplish university business.

The campus has prioritized systematically updating legacy programs that make data-sharing difficult, while also addressing processes that are cumbersome and manual. Managers and supervisors have also been working to update the business continuity plans of each unit to ensure that operations can continue amid different types of disruption.

Upholding our mission through COVID-19 required rapid changes in campus operations, including the campus' first experiences with large-scale remote work and providing substantially remote services. These disruptions required developing and implementing best practices for remote work, business process improvements and adoption of shared productivity tools.

Financial Profile

At UC Santa Cruz, approximately 50 to 60 percent of campus operations are supported by core operating funds (state funds, tuition and fee revenue). Revenues for fiscal year 2021 totaled $801 million, down $78 million from FY 2020 and down $86 million from 2019. Financial impacts due to reduced on-campus presence to mitigate the spread of COVID-19 have been felt most strongly by campus auxiliaries, sales and service operations. Core operating funds (state support, tuition, fees) also were affected in fiscal year 2021 due to the state budget cut and enrollment reductions at both undergraduate and graduate student levels. University Extension experienced significant enrollment reductions in continuing education, while seeing increased utilization of UC SCOUT online A-G courses. These significant revenue gaps were only partially offset by federal Higher Education Emergency Relief funding (HEERF) and higher-than-normal returns on investments. It is currently estimated it may take campus housing five years or more to rebuild its capital reserves and ability to borrow. Other operations (parking, bookstore, Arboretum, University Extension, etc.) are estimated to also have long recovery periods.

Although salary and benefits costs remained steady in an effort to preserve jobs, some expenses ($3 million in utilities alone) were reduced due to COVID-19. An infusion of $18.9 million in HEERF dollars across fiscal years 2020 and 2021 were spent on scholarships and fellowships, plus $18.9 million on technology, transition to remote instruction, mitigation of some revenue loss to retain jobs, transition to remote student services, and health and safety mitigations.

Environmental Sustainability

Sustainability is woven through all activities and operations at UC Santa Cruz. From research to purchasing, our community seeks to minimize the campus's environmental footprint. The Campus Sustainability Plan, set to be updated in 2022, guides our work.

The plan, which recognizes that environmental sustainability intersects with social issues, focuses on the following four areas with specific goals, strategies, and actions to help move the campus forward:

- Learning and Culture
- Materials Management and Food Systems
- Natural Environment and Infrastructure
- Climate and Energy

Strengths

Strength 1: Improving Salary Equity for Non-Represented Staff

Our staff are a critical resource for our campus and salaries for our non-represented staff have not kept pace with the market, hindering our ability to attract and retain key employees and contributing to low morale. To better support our non-represented staff, in September 2021 UC Santa Cruz announced a three-year, $5.5 million equity compensation plan designed to help the campus recruit, develop and retain a well-qualified and engaged workforce. The campus invested $2.5 million in 2022 and will invest an additional $1.5 million in each of the following years (2023 and 2024). The equity plan is combined with a compensation plan that prevents employees from being hired below the 25 percentile of the range without consultation with Staff Human Resources and a focused equity review program to better align compensation across the campus.

Strength 2: Telecommuting, Hybrid Schedules, and Remote Work Program

Early in the COVID-19 pandemic, the stay-at-home order created an environment in which most UCSC employees were suddenly working remotely. In response, we developed and implemented Situational Telecommuting Guidelines to address topics such as duties and assignments, communication, workplace environment, and dependent care. To further support employees, we developed Resource Needs for Remote Worksites, which facilitates employees and departments in optimizing remote worksites with necessary resources including equipment, technology, and ergonomics support.

The result was that employees and managers successfully and quickly adapted to working remotely, and leadership agreed that alternative work arrangements could be a long-term model for some UCSC employees. This aligns with a global trend toward embracing flexible work arrangements and recognition that they can enhance employee engagement, expand recruitment options, and support retention.

As the campus has resumed in-person instruction, we moved forward with implementing a program and tools for hybrid schedules and remote work. Throughout the development of the program, ongoing feedback and discussions within the workgroups and the greater campus community continually identified gaps and important issues/concerns for which we made adjustments to ensure alignment with campus goals and UC policy.

To facilitate collaboration while working remotely or in-person, we adopted an enterprise-class project, task and work management service that was made available to all UCSC staff at no cost to their units. The platform provides for more efficient and effective remote and in-person collaboration that is user-friendly and scalable across the university. Teams are able to streamline and simplify work with benefits including integration with existing email, calendar, and office applications, standardization with templates and tracking assignments and topics for recurring and ad hoc meetings.

Today, nearly 1,000 employees have taken advantage of UCSC's program and have hybrid schedules or working remotely full time. This is recognized as an important benefit to employees, and one that is vital to positioning UCSC as a highly desired workplace. Recruitment advertising and job postings feature opportunities for alternative work arrangements prominently, helping us to further attract high-quality applicants from a range of backgrounds and providing an advantage over organizations that do not offer these accommodations.

The shift to hybrid schedules and remote work has also enabled us to expand our space capacity through a reduced on-site workforce and strategies such as shared offices and hoteling. We are continuing to make progress on sustainability-related goals related to reduction in energy consumption, space usage and parking capacity. This effort has also helped to build campus resiliency and further strengthen business continuity for when we face future disruptive events.

Strength 3: Business Process Improvements and Productivity Tools

The shift to a remote-work environment required previously paper-driven business processes, documentation, and record retention to be managed electronically to sustain business operations. In response, UC Santa Cruz identified and implemented business process improvements and productivity tools that introduced automation and reduced manual and paper-based workflows, improved the speed of business transactions through electronic approvals and self-service options, and enabled remote accessibility of documents while maintaining appropriate record-retention policies. The benefits have significantly improved efficiency and effectiveness in campus operations with some examples listed below.

- A **campuswide electronic signature** platform has enabled the business unit to re-deploy our most frequently used forms ("envelopes") as electronic experiences. The average completion time for envelopes has fallen nearly 50 percent since rollout, and more than half of the envelopes are now completed in under two days. Using the Environmental Paper Network's formula for environmental savings, we have an estimated savings of 13,100 pounds of wood, 38,573 gallons of water, 30,749 pounds of carbon, and 2,129 pounds of waste since the platform was introduced in 2020.
- A new **B2B (business-to-business) payment and information exchange system** provides an automated solution for previously labor-intensive vendor onboarding and maintenance. Departments invite potential vendors to complete an online onboarding process and maintain transparency into their onboarding status throughout. Vendors use a self-service portal for registration and ongoing updates. In addition to reducing campus effort, this B2B system provides a secure electronic repository that helps eliminate payment fraud, allows secure ACH payment set up, and serves as a business identity management platform, enabling us to verify a payee's identity and ensure compliance with UC supplier registration policies.
- **CruzFly**, UC Santa Cruz's Expense Reporting System, automates and streamlines the employee travel expense reimbursement and monthly Corporate Travel and Entertainment (CTE) Card reconciliation processes. CruzFly allows users to capture receipts and submit reports in a paperless manner. Receipts can be emailed, uploaded or sent from a smartphone. Out-of-pocket travel costs and/or CTE Credit Card expenses are submitted through CruzFly and automatically routed to appropriate approvers and Accounts Payable. Employees can track where expense reports are in the process at any time.
- **Slugbot**, the Student Business Services (SBS) AI chatbot, was developed to improve customer service related to general inquiries on topics including billing, housing,

schedules, financial aid, records, and financial literacy. Slugbot activity is closely monitored and responses are continually enhanced based upon customer queries and metrics. Slugbot is available 24/7 and currently fluent in English, Spanish and Chinese.

- **Expanded use of P-Cards, CTE-Cards and Payment Plus,** In 2020, UC Santa Cruz received a $40,000 grant to expand the use of Procurement cards (P-Cards), Corporate Travel and Entertainment Cards (CTE-Cards) and Payment Plus, which utilizes virtual cards. We used the funds to hire two students who supported a project that effectively expanded the use of P-Cards within the Procurement and AP processes, including implementing their use for high-spend and large utility vendors. The program has achieved a nearly 200 percent increase in P-Card activity and thus, rewards, enabling the campus to invest in various systems to interact with our vendors and campus clients more efficiently. We are now moving to the next phase with the implementation of Payment Plus in April 2022. This vendor payment solution will provide additional opportunities to generate revenues as well as increase efficiency and reduce risks, including enhancing controls and compliance with near real-time monitoring of activity and improving the secure delivery of automated payments to our suppliers.

Strength 4: New platform for textbooks and course materials

Beginning winter quarter 2022, our Bay Tree Bookstore transitioned textbook services to an online bookstore model, providing students with the widest selection of low-cost purchasing options, formats including new, used, eBook and rental, and convenient delivery to a home or campus address. The platform provides faculty with access to low-cost, high-quality course material options during the process used to inform the bookstore of their required books. This, in turn, promotes savings of up to 70 percent on new textbook prices. In response to this new online bookstore platform, faculty adoption has more than doubled since its launch, increasing from 23 to 50 percent within the first quarter.

Strength 5: People of Color Sustainability Collective (PoCSC)

Our campus has conducted innovative research on inclusive sustainability through the [People of Color Sustainability Collective](#), which was a 2021 AASHE [awards finalist](#) in the Racial Equity & Sustainability Collaborations category. PoCSC takes a student-centered approach to:
- Raise awareness about the contributions people of color have made to the environmental sustainability movement.
- Re-examine the definition and values of the sustainability movement to be more inclusive of all underrepresented populations.
- Undertake student-centered research and dissemination to center the experiences and expertise of people of color around sustainability.
- Create critical dialogue about environmental justice through discussions, student of color caucuses, social media awareness campaigns, workshops, and speaker presentations.

Strength 6: Information Security Resiliency

The Information Security team is utilizing the TDI initiative tool in collaboration with UCOP to provide cloud-based data security for UCSC. This tool allows the team's critical security services to remain independent from the campus network, a key resiliency milestone for security teams as the industry faces sophisticated ransomware and takeover attacks. The team is following this

effort by migrating additional tools to the cloud allowing monitoring and analysis of threats regardless of where campus data is stored in the future.

Challenges

Challenge 1: Zero Waste

UC Santa Cruz, along with most UC campuses, has more work to do to reach the systemwide policy goal of 90 percent waste diversion from landfill, with our campus hovering around a 50 percent diversion rate. Operational impacts caused by COVID-19, such as the increase in single-use products for health and safety purposes, present additional challenges in meeting this important goal.

Challenge 2: Drought Resilience

Our 2021 LRDP projects a significant increase in water demand as enrollment grows while scientists raise concerns that the Southwest could be entering a megadrought period. Even with the help of decreased headcounts due to COVID, the campus was unable to meet our final month of the City's 2021 Stage 1 water restrictions. Financial and functional impacts to campus operations should be expected in future inevitable drought years. Preliminary options to pursue non-potable water sources and infrastructure are highlighted within our 2021 LRDP, and present an opportunity for the campus to invest resources and infrastructure to start tackling this issue.

Challenge 3: Fossil Fuel Reduction and Electrification

As the climate change crisis accelerates, UC Santa Cruz's time to reach its goal of achieving climate neutrality by 2025 is drawing closer while community advocacy for climate action is increasing. Our continued reliance on fossil fuels is also a social justice issue, further highlighted by the increasingly diverse student and faculty population who come to our campus with health issues affected by the burning of fossil fuels. UC Santa Cruz needs to further explore how to optimize energy efficiency in new construction, increase the pace of implementing energy efficiencies, and begin planning for and implementing campus and fleet electrification.

Challenge 4: Lack of a Unified Financial System

UC Santa Cruz currently lacks a unified system for accounting, travel, procurement, budgeting and reporting functions, which hinders our ability to work in a streamlined and collaborative fashion. The campus currently maintains a variety of accounting and financial services-related systems that have been sourced on an ad hoc basis to support campus needs. Individually, each system represents an industry-leading solution, but collectively, their lack of compatibility and integration puts each in a silo, with limited capabilities to adapt and meet our evolving needs and creates duplicative, inefficient processes that are onerous for the staff using or maintaining them. Without reliable integrations, we lose both data integrity and confidence as the users and consumers of the information struggle to find a single shared version of the truth. In addition, the disparate systems limit our ability to stay current with UC systemwide changes as they move toward standardization.

<u>*Opportunities*</u>

Opportunity 1: Space Utilization

The shift to hybrid schedules and remote work has enabled UC Santa Cruz to increase space capacity through a reduced on-site workforce and strategies such as shared offices and hoteling. We are working to develop a clear, efficient and transparent space analysis and assignment process that will include a regularly updated space inventory and a campus space committee that will make recommendations to leadership to optimize space use. Through new hybrid work arrangements and remote work policies for employees, we can also significantly reduce Scope 3 commuting emissions, find efficiencies in space utilization, and conserve campus resources through decreased water usage, electricity usage and landfill/recycling/compost waste.

Opportunity 2: Leverage Grant Opportunities

Over the next five years, billions in federal dollars will be allocated to improving infrastructure along with up to $22.5 billion in state allocations toward climate resilience. We are preparing to respond to many anticipated opportunities for grants in areas such as drought response and long-term water resilience, wildfire prevention, waste reduction and recycling, coastal protection, the clean energy economy, and other sustainable initiatives.

Opportunity 3: Common Data Platform

The Common Data Platform (CDP) is a joint strategic initiative between the Chancellor's Office, Data Management, and Information Technology Services (ITS), along with key business partners, to deploy a cloud-based modern data stack. This initiative will centralize and secure our enterprise data and implement automated data pipelines from source to target in near real time. It will enable a transparent data modeling methodology and promote a collaborative data culture. The CDP will develop an enterprise data model (a single source of facts) to support data at scale from multiple domains/systems (e.g. student, human resources, finance, facilities) and collaboratively develop curated, trusted data that will be available for reporting, analytics, integrations, etc. As part of the CDP, and with the commitment from executive leadership, a cross functional, campus-wide data governance process will be developed and implemented. The CDP will improve the information experience for decision-makers and analysts by bringing actionable insights through modern business intelligence tools.

Opportunity 4: Increase Solar Power and Microgrids

Energy-efficiency projects and the installation of photovoltaic panels and batteries will help achieve our electrification and carbon neutrality goals while also providing energy savings. UC Santa Cruz made major strides this year toward meeting the University of California's systemwide 2025 carbon neutrality goal with the completion of a two-megawatt solar parking canopy at our East Remote Parking Lot. The array boosts use of renewable energy while also reducing energy bills. It will generate enough power to meet about 6 percent of the total campus electrical load. Our Office of Physical Planning, Development, and Operations is currently assessing additional opportunities for solar at both the Westside Research Park and Coastal Science Campus in Santa Cruz and the Monterey Bay Education Science and Technology Center. Incorporating sustainable energy sources like solar power and batteries into microgrids will increase the resiliency of campus infrastructure while providing a research testbed for our

faculty and students as they address the technical issues inherent in the intermittent nature of renewable energy sources like wind and solar.

Opportunity 5: Campus Sustainability Plan Update

Updating our five-year campus sustainability plan will be a critical pillar of our 2022 campus strategic planning process. An advantage of this approach is that sustainability will be integrated into the strategic plan and vision for the campus in 2032, rather than developed through a more siloed, stand-alone process. The new plan will allow us to address the priority challenges highlighted above and build on existing strengths. New and noteworthy elements that will be incorporated into the plan include an increased emphasis on equity and environmental justice, as well as resilience planning initiatives to address the ongoing and future impacts of climate change on our campus and local community.

Opportunity 6: Increase Financial Resources and Stability

Our campus goals, which are moving the campus forward in strategic areas, will take advantage of recent and in-process financial opportunities, including:

- State budget permanent increases and increased one-time funding (e.g. deferred maintenance);
- UC's change to the distribution of state funding to ensure that UC Santa Cruz receives at least 95 percent of the systemwide average on an unweighted per student basis;
- The multi-year tuition stability plan that affects tuition, student services fees, and non-resident supplemental tuition rates;
- Close monitoring of cash investments as opportunities to realize gains to expedite necessary capital projects, particularly housing, deferred maintenance and seismic improvements;
- Redistribution of campus financial and space resources to better align with services, needs, and goals, particularly for hiring more faculty;
- Continued growth of extramural research revenues;
- Successful negotiation of an updated federal facilities and administrative rate (or indirect costs rate). UC Santa Cruz has the lowest rate in the UC system (54 percent). Our Federal rate proposal package was submitted in June 2020, the third submission in UCSC history, with approval of estimated to occur in 2023; and
- Continued growth in philanthropy, with plans underway for a comprehensive fundraising campaign

SUMMARY

UC Santa Cruz continues on an unprecedented upward trajectory and is well-positioned for even greater success in the years ahead. Our four goals—advancing student success, strengthening the impact of our research, fostering an inclusive campus climate, and improving our efficiency, effectiveness, resiliency, and sustainability—are energizing our community and focusing our work to become an even stronger student-centered, public research institution.

Our improved financial outlook allows us to plan on expanding our faculty by 100 additional hires over the next decade. Coupled with an anticipated 200 to 250 faculty hires necessary to replace departures due to retirement and separations, UC Santa Cruz has an unparalleled opportunity to diversify our faculty, improve our student-to-faculty ratio and student outcomes,

advance our research impact, and provide students even access to mentoring, research and learning opportunities.

There are challenges to overcome, particularly related to the housing crisis, which affects many people in our campus community. We are in the midst of constructing additional housing and actively developing plans to build more in the years ahead.

The future will always present unexpected obstacles, which is why we are focused on developing tools, systems and processes that increase our overall resiliency, preventing significant disruption in our mission of teaching, research, and service. As we adapt to new challenges created by climate change, we are redoubling our efforts to increase the sustainability of our operations, conserve our natural resources and reduce our environmental impact.

A public research university like UC Santa Cruz is a powerful tool for positive change. Through education, research and creative scholarship, and public service, we can serve our state and create a more just and equitable society. It's this promise of a better tomorrow that continues to drive our best work today.

Attachment 1: UC Santa Cruz 2021 Financials
Attachment 2: UC Santa Cruz 2030 Goals