The Regents of the University of California

ACADEMIC AND STUDENT AFFAIRS COMMITTEE
May 15, 2024

The Academic and Student Affairs Committee met on the above date at the UC Merced Conference Center, Merced campus and by teleconference meeting conducted in accordance with California Government Code §§ 11133.

Members present: Regents Anguiano, Batchlor, Hernandez, Park, Raznick, Sarris, and Tesfai; Ex officio member Drake; Advisory members Beharry, Pack, Salazar, and Steintrager; Chancellors Christ, Muñoz, Wilcox, and Yang; Staff Advisor Mackness

In attendance: Regents Chu, Cohen, Pérez, Robinson, Sherman, and Sures, Faculty Representative Cheung, Secretary and Chief of Staff Lyall, Assistant Secretary Bricker, General Counsel Robinson, Provost Newman, Executive Vice President and Chief Financial Officer Brostrom, Executive Vice President and Chief Operating Officer Nava, Interim Senior Vice President Reese, Vice Presidents Brown, Gullatt, and Maldonado, Chancellors Khosla, Larive, and May, and Recording Secretary Li

The meeting convened at 1:55 p.m. with Committee Chair Park presiding.

1. **APPROVAL OF MINUTES OF PREVIOUS MEETING**

Upon motion duly made and seconded, the minutes of the meetings of March 20 and April 10, 2024 were approved, Regents Anguiano, Batchlor, Drake, Hernandez, Park, Raznick, Sarris, and Tesfai voting "aye." [1]

2. **APPROVAL OF NEW MULTI-YEAR PLANS FOR PROFESSIONAL DEGREE SUPPLEMENTAL TUITION FOR TWELVE GRADUATE PROFESSIONAL DEGREE PROGRAMS AND ONE-YEAR EXTENSIONS OF MULTI-YEAR PLANS FOR ELEVEN GRADUATE PROFESSIONAL DEGREE PROGRAMS**

The President of the University recommended that the Academic and Student Affairs Committee recommend that the Regents approve:

A. The multi-year plans for charging Professional Degree Supplemental Tuition (PDST) for 12 graduate professional degree programs as shown in Display 1, and

B. A one-year extension of the multi-year plans for the 11 graduate professional degree programs as shown in Display 2.

[1] Roll call vote required by the Bagley-Keene Open Meeting Act [Government Code §11123(b)(1)(D)] for all meetings held by teleconference.

DISPLAY 1: Professional Degree Supplemental Tuition Levels[1] for 12 Programs

	Current Level		Proposed Level			
	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
Business, Berkeley						
Resident PDST Level	$54,318	$57,034	$59,886	$62,880	$66,024	$69,324
Nonresident PDST Level	$54,318	$57,034	$59,886	$62,880	$66,024	$69,324
Environmental Design, Berkeley						
Resident PDST Level	$8,252	$8,664	$9,096	$9,550	$10,028	$10,528
Nonresident PDST Level	$8,252	$8,664	$9,096	$9,550	$10,028	$10,528
Business, Davis						
Resident PDST Level	$30,411	$31,620	$32,880	$34,200	$35,580	$36,990
Nonresident PDST Level	$30,411	$31,620	$32,880	$34,200	$35,580	$36,990
Business, Irvine						
Resident PDST Level	$30,702	$31,932	$33,210	$34,539	$35,922	$37,359
Nonresident PDST Level	$30,702	$31,932	$33,210	$34,539	$35,922	$37,359
Genetic Counseling, Irvine						
Resident PDST Level	$13,962	$14,661	$15,393	$16,164	$16,971	$17,820
Nonresident PDST Level	$13,962	$14,661	$15,393	$16,164	$16,971	$17,820
Urban Planning, Irvine						
Resident PDST Level	$6,489	$6,813	$7,155	$7,512	$7,887	$8,283
Nonresident PDST Level	$6,489	$6,813	$7,155	$7,512	$7,887	$8,283
Architecture, Los Angeles						
Resident PDST Level	$10,476	$10,800	$11,124	$11,460	$11,850	$12,210
Nonresident PDST Level	$10,476	$10,800	$11,124	$11,460	$11,850	$12,210
Environmental Science & Engineering, Los Angeles						
Resident PDST Level	$8,490	$8,745	$9,006	$9,276	$9,555	$9,843
Nonresident PDST Level	$8,490	$8,745	$9,006	$9,276	$9,555	$9,843
Theater, Film & Television, Los Angeles						
Resident PDST Level	$14,790	$15,531	$16,311	$17,130	$17,991	$18,894
Nonresident PDST Level	$14,790	$15,531	$16,311	$17,130	$17,991	$18,894
Urban Planning, Los Angeles						
Resident PDST Level	$8,793	$9,234	$9,696	$10,182	$10,692	$11,226
Nonresident PDST Level	$9,444	$9,918	$10,413	$10,935	$11,481	$12,057
Business, San Diego						
Resident PDST Level	$34,965	$36,711	38,547	$40,473	$42,498	$44,622
Nonresident PDST Level	$34,965	$36,711	38,547	$40,473	$42,498	$44,622
Natural Language Processing, Santa Cruz						
Resident PDST Level	$22,508	$23,181	$24,339	$25,554	$26,829	$28,170
Nonresident PDST Level	$22,508	$23,181	$24,339	$25,554	$26,829	$28,170

[1] The amounts reflect the maximum PDST levels to be assessed, effective as of the academic year indicated. Assessing PDST levels less than the level indicated requires approval by the President with the concurrence of the Chancellor. PDST levels may be assessed beyond the period covering the program's approved multi-year plan but not in excess of the maximum levels specified in the final year.

DISPLAY 2: Professional Degree Supplemental Tuition Levels for the 11 Programs Requesting a One-Year Extension

	Current 2023-24	Proposed 2024-25
Civil and Environmental Engineering, Berkeley		
Resident PDST Level	$7,096	$7,096
Nonresident PDST Level	$13,830	$13,830
Educational Leadership (Ed.D.), Berkeley		
Resident PDST Level	$8,000	$8,000
Nonresident PDST Level	$8,000	$8,000
Information Management, Berkeley		
Resident PDST Level	$9,112	$9,112
Nonresident PDST Level	$9,112	$9,112
Law, Berkeley		
Resident PDST Level	$47,040	$47,040
Nonresident PDST Level	$47,222	$47,222
Statistics, Berkeley		
Resident PDST Level	$23,268	$23,268
Nonresident PDST Level	$26,592	$26,592
Translational Medicine, Berkeley		
Resident PDST Level	$35,154	$35,154
Nonresident PDST Level	$35,154	$35,154

	Current 2023-24	Proposed 2024-25
Preventive Veterinary Medicine, Davis		
Resident PDST Level	$6,243	$6,243
Nonresident PDST Level	$6,741	$6,741
Biomedical & Translational Science, Irvine		
Resident PDST Level	$14,763	$14,763
Nonresident PDST Level	$14,763	$14,763
Medicine, Los Angeles		
Resident PDST Level	$30,304	$30,304
Nonresident PDST Level	$30,304	$30,304
Medicine, Riverside		
Resident PDST Level	$25,944	$25,944
Nonresident PDST Level	$25,944	$25,944
Public Policy, Riverside		
Resident PDST Level	$5,952	$5,952
Nonresident PDST Level	$5,952	$5,952

[Background material was provided to Regents in advance of the meeting, and a copy is on file in the Office of the Secretary and Chief of Staff.]

Interim Associate Vice President Caín Díaz introduced the item, which requested the approval of multi-year plans for Professional Degree Supplemental Tuition (PDST) for 12 graduate professional degree programs, as well as the approval of one-year extensions for 11 programs. Prior conversations between programs and Committee members highlighted both challenges and opportunities. For instance, there was a question of whether the Native American Opportunity Plan (NAOP) would continue to cover PDST. The four programs presenting during this meeting have committed to extending NAOP coverage of PDST for eligible students. The remaining programs have either committed or were considering the same.

Committee Chair Park acknowledged the work of President Drake on the NAOP. She expressed gratitude to the programs who have committed to or were considering extending NAOP coverage of PDST. Committee Chair Park noted the enrollment and application challenges that this demographic faced and expressed hope that this effort would be a great outreach and recruitment tool so that UC can further extend the NAOP.

Mr. Díaz introduced the UC Berkeley Environmental Design program.

Renee Chow, Dean of the College of Environmental Design at UC Berkeley, explained that, within the proposed PDST plan, the Master of Architecture and the Master of Landscape Architecture offered two-and three-year programs, the Master of City Planning was a two-year program, and the Master of Advanced Architectural Design and the Master of Urban Design were one-year programs. The mission of the College was to launch graduates to be agents of change for the environmental good, accelerating pathways and

practices towards resilient, healthy, and equitable environmental futures. The College, which had the top ranked national public program in architecture and the built environment according to *QS World University Rankings*, was home to 50 Academic Senate faculty and 35 adjunct faculty and lecturers, 700 undergraduate students, 361 PDST students, and over 230 students in other graduate research programs. The PDST programs offered multidisciplinary training in climate resilience and environmental equity, and subjects spanned the sciences, social sciences, humanities, and design. The College had centers for housing, building performance, regional development, as well as informal clusters for new material technologies, urban climate adaptation, sustainable transportation and land use, community engagement, and spatial data analytics. Graduates have found careers in architecture, planning, government, as well as in community and economic development. PDST revenue has been essential to supporting computation and data analytics, supporting professional faculty; maintaining low student-to-faculty ratios as required by accreditation; recruiting a diverse student population; providing professional student teaching opportunities; and providing financial aid. With regard to accessibility and affordability, the percentage of underrepresented minorities (URM) and women in the design profession has historically been low. The percentage of URM students in the College has risen from 12.5 percent in fall 2017 to 16.8 percent this past fall. URM and Asian American/Pacific Islander (AAPI) faculty made up 34 percent of ladder-rank faculty, up from about 25 percent in fall 2017. Ms. Chow acknowledged that there was more to do. Compared with its public peers, the College's total in-state charges were below average, and about $240,000 of $760,000 in PDST-funded financial aid was need-based. The Arcus Social Justice Corps (ASJC) fellowship was awarded to students based on need and academic achievement despite various obstacles in return for a commitment to three years of work in social justice upon graduation. In its three years, the pilot program has had 53 fellows, 55 percent of whom identified as URM, 25 percent as AAPI, and 66 percent as female. Student groups and faculty supported a five percent increase to PDST. The proposed increase would maintain excellence by covering inflation, increase affordability through need-based aid, and provide career development support, particularly to students from diverse backgrounds moving into environmental design professions.

Committee Chair Park asked whether the applicant pool for these programs was changing with increased outreach and recruitment efforts. She asked Ms. Chow to comment on the increase in URM applicants during the COVID-19 pandemic and the subsequent decrease afterward. Ms. Chow opined that the increase in applications during the pandemic was remarkable and that several years were needed to increase recruiting efforts again. The College was facing more competition, but Ms. Chow believed that the number of URM applications could increase again with increased outreach efforts.

Committee Chair Park asked the PDST programs and the Office of the Systemwide Provost to investigate this increase in applications from underrepresented students during the pandemic and the subsequent decrease, as well as determine an approach that would regain that momentum.

Committee Chair Park asked whether there were differences among the programs in the proposal. Ms. Chow responded that the biggest difference was in the programs'

demographics. The Master of City Planning was the most diverse of the five programs, and two of the smaller programs were highly international. The Master of Architecture and the Master of City Planning programs had the most women.

Committee Chair Park noted fiscal pressures that could result from plans to decrease the number of international students and increase the number of California resident students. She asked how the College would account for the resultant change in revenue. Ms. Chow replied that the College planned to cover some of that difference with revenue-generating programs such as summer programs. For the first year of the plan, a slight increase in nonresident students could cover the loss of revenue from fewer international students.

Mr. Díaz introduced the UCLA Architecture program.

Mariana Ibañez, Associate Professor and Chair of the Department of Architecture and Urban Design at UCLA, explained that the Master of Architecture is a three-year, accredited professional degree program with a current enrollment of about 130 students. The program prepared students for the practice of architecture and urban design with a focus on current complex social, cultural, political, and ecological challenges. The studio-based curriculum fostered collaboration, tasked its community with understanding the past and present of buildings and cities, and leveraged space-making knowledge and new technologies for a better, more just, and sustainable future. The program accepted students from diverse educational backgrounds and strengthened the collaborative and interdisciplinary nature of architectural education and practice. PDST funds supported financial aid, programming costs associated with accreditation, specialized software, and the cost of materials for the production of models and prototypes. Since the last PDST plan was approved, the Department has focused on issues of diversity, equity, inclusion, and belonging. Historically, this field has not been diverse, and academia played an essential role in building pipelines into the profession. In 2018, five percent of students came from underrepresented groups (URGs), which grew to ten percent in 2020 and 13 percent in 2023. Ms. Ibañez highlighted several projects and initiatives that support these goals. The Department established its own chapter of the National Organization of Minority Architecture Students and used PDST to cover costs such as membership fees to the national chapter and conference travel. The Master of Architecture program has increased the amount of return-to-aid every year; this included scholarships offered at admission, aid during recruitment, and a fund for current students experiencing hardship. Over the last three years, the program has given aid to 100 percent of students who requested need-based support. Aid used for recruitment that was not accepted was redistributed as need-based support to current students; about 30 percent of enrollees were Pell Grant recipients. The Department provided scholarships to Los Angeles Unified School District students from low socioeconomic backgrounds to attend summer programs, which served as pipelines to the undergraduate and master's programs. The Department was committed to increasing the enrollment of African American and Native American students and was considering how more students could learn about and consider an architectural education, how students could be encouraged to apply for the program, how yield could be increased, and what resources could be offered for success upon graduation. Multiple new strategies supported by PDST have been launched that built relationships with community colleges, technical

schools, Historically Black Colleges and Universities (HBCUs), and high schools. Free portfolio preparation workshops and multi-year financial aid packages to increase yield were offered as well as increased subsidies for tools and production costs. In response to questions about debt and affordability from an earlier information session, Ms. Ibañez stated that 72 percent of students graduated with debt in 2010, 47 percent of students graduated with debt in 2016, and 30 percent of students graduated with debt in 2022. There was much work to do to stay in this trajectory, as URGs faced more barriers and were more affected by debt. The program planned to allocate 37 percent of PDST revenue to financial aid, up from 33 percent, and was committed to advancing diversity and affordability goals.

Committee Chair Park noted that the percentage of underrepresented students graduating with debt has remained consistently high, as well as the level of debt compared with median salary. She asked if 37 percent return-to-aid would make a difference, expressing concern that students would be dissuaded from considering the program. Ms. Ibañez expressed hope that recent changes to the financial aid packages would be reflected in the data. Since last year, admitted URG students were offered three years of tuition and a stipend.

Regent Sarris foresaw the ongoing challenge of recruiting a diverse student body given that such students historically came from stressed financial backgrounds and would be alarmed by the prospect of debt, especially in current economic times.

Mr. Díaz introduced the UC Berkeley Business program.

Ann Harrison, Dean of the Haas School of Business, noted that she has focused on three pillars as Dean: innovation, sustainability, and inclusion. The School's full-time MBA program has had numerous successes but there was still work left to do. The proposed PDST increase of five percent for the next five years was critical to the success of the program. The School has made tremendous progress with respect to the long-standing challenge of demographic representation and inclusion experienced in all business schools. Over the last five years, the percentage of underrepresented students has increased from eight to 15 percent and would increase to 18 percent in fall 2024. Of the 37 hires over the last five years, 49 percent have been women, and 24 percent have been underrepresented. The School appointed a Chief Diversity, Equity and Inclusion Officer, had a team of five full-time equivalents, and published a strategic plan on its website. The scholarship budget has grown from $8 million to $12 million and was projected to grow to $15.25 million next year. With the proposed PDST increase, the program would offer 46 percent return-to-aid. The program required a core course on leading diverse teams, which addressed issues such as unconscious bias and discrimination. Domestic enrollment has presented a significant challenge; full-time MBA programs in the U.S. have seen flat or declining enrollment, with some schools shutting down their programs. In California, this could be attributed to the outflow of talent and the narrative of layoffs in the technology sector. In last five years, the School admitted a higher proportion of California residents, but fewer have chosen to enroll. Ms. Harrison noted that most international students choose to stay in California after graduation. While tuition levels have increased over the last five years, the scholarship budget has grown 50 percent. Students took an average of five to seven years to repay their debt and had a zero percent default rate. The program provided a lifetime return on

investment of $8 million dollars, the third highest of any U.S. business school, and offered loan repayment assistance to students pursuing social impact, nonprofit, or public service careers. The PDST increase would help the program improve need-based scholarships to better attract and yield first-generation and underrepresented students; support diversity initiatives that equip students, faculty, staff, and alumni to effectively lead diverse teams; and improve the student experience through the development of workshops, resources, new co-curricular offerings.

Regent Anguiano asked how Haas achieved its student diversity goals. Ms. Harrison replied that Haas broadened its outreach efforts to California State University campuses, HBCUs, and Hispanic-Serving Institutions (HSIs). Doubling the amount of scholarship offered made a significant difference in yield. Director of Diversity Admissions Anthony Whitten added that the School shifted its messaging to better resonate with the underrepresented population, examined outreach and recruitment best practices, and engaged with students about their experience at Haas. In its first admissions cycle after the U.S. Supreme Court decision regarding affirmative action, the School amplified its commitment to diversity, equity, inclusion, justice, and belonging. Haas also strengthened its partnerships with national organizations for underrepresented groups.

Staff Advisor Mackness asked what strategies Haas has employed to diversify its faculty that might help other programs. Ms. Harrison responded that leadership were committed to this cause, and Haas has engaged in extensive outreach efforts that involved the whole community. She shared a sampling of the organizations Haas has contacted. All candidates wrote diversity, equity, and inclusion (DEI) statements and were asked to spend ten minutes of their interview explaining how they would advance DEI.

Mr. Díaz introduced the UC Davis Business program.

H. Rao Unnava, Dean of the UCD Graduate School of Management (GSM) shared the School's accomplishments in the last five-year PDST plan period. The fall 2023 cohort was 43 percent female, and GSM has averaged over 50 percent female participation in the last four years. Fifty percent of tenure-track faculty hires were women, and the School partnered with the UCD Office of Diversity to hire URG faculty. GSM doubled the number of Pell-eligible students to 37 percent and increased financial aid to 45 percent of PDST, compared to 33 percent during the prior plan period. The School has enrolled two NAOP candidates to its full-time MBA program and has expanded NAOP to all of its programs, not just State-supported programs; GSM now had five more NAOP-eligible students. Also in the last plan period, 12.8 percent of MBA students were from URGs, compared to 4.5 percent in the prior plan period. Last year, UC Davis's MBA program ranked 13th nationwide for diversity in *Bloomberg Businessweek*, and the Association to Advance Collegiate Schools of Business recognized GSM's diversity efforts as one of 20 "Innovations That Inspire" selections.

Amy Russell, Senior Assistant Dean for Student Affairs, acknowledged that GSM experienced a setback in its diversity efforts when five admitted students did not enroll, reducing the student body to nine percent URG. The School was working on three areas to

increase its URG reach. First, GSM was leveraging new and existing partnerships, connecting with organizations trusted by URG communities such as Students Rising Above and the Summer Search foundation to provide free workshops, mentorship, and career advice to students who were years away from being MBA-ready. The School continued its partnership with the National Black MBA Association, and staff attended diversity events for students who were Black, Hispanic, Native, veteran, and women to increase applicant diversity, as well as career exhibitions. GSM has continued its investment in the networking group Metro EDGE and has formed a new partnership with the Sacramento Kings basketball team to mentor fans who were participants in Improve Your Tomorrow, an organization to improve college-going and graduation among young men. The School was identifying best practices from its online portfolio, which was 30 percent URG, that could be implemented in the full-time MBA program. The second area of GSM's focus was continuing its collaboration with other UC campuses on initiatives such as the Summer Institute for Emerging Managers and Leaders (SIEML), in which campuses hosted students from HBCUs and HSIs and committed to a two-year, full-tuition scholarship for their MBA programs. Yield has been challenging. SIEML has served 300 students and enrolled 19 into UC graduate programs, six of whom enrolled at UC Davis, but none have enrolled in UCD's full-time MBA program. Reasons for UC Davis' struggle to yield SIEML students might include geographical distance and the fact that UCD students did not qualify for SIEML. So far, 14 UCD students have participated in UC San Diego's California Leadership Institute (CaLI), and participants were applying to UC Davis programs. GSM launched a Diversity Champions program, in which 20 staff members explored ways they incorporate diversity, equity, inclusion, and belonging into their work to improve the student experience. The School stayed in long-term contact with URG students, who could bring students from their networks to the program. The School recognized the challenges it faced and was fully committed to recruiting a class that reflects the diversity of the state.

Mr. Unnava stated that the proposed PDST plan sought a four percent increase each year in order to balance affordability goals with the financial requirements of providing high-quality instruction and student services.

Regent Anguiano asked why, despite all the activities presented, the number of URG applications has declined in the last four years from 31 to 19, with URG enrollment declining from nine to one. Mr. Unnava replied that the overall applicant pool for MBA programs was shrinking, and GSM was expanding outreach to new areas such as the Sacramento Kings and CaLI to grow the potential applicant pool. Ms. Russell added that three students from URGs were joining the incoming MBA class, and the program would make two additional offers shortly. Many URG students were coming to GSM early in their careers and did not yet qualify for the MBA program; admitting a student only for an internship could result in a lower earning potential. The School recently launched a Master of Management program, which could create a pipeline to the MBA program.

Committee Chair Park, referring to the written materials, asked why one chart indicated that nine percent of students were from URGs in 2023–24 and another chart indicated that there was one URG student out of 39. James Kelly, Assistant Dean for Finance and

Administration, replied that the first chart demonstrated total student population, and the second chart was for fall 2023 enrollment. There was data discrepancy between the system of record, which indicated two URG students enrolled in fall 2023, and another data set prepared according to requirements that did not consider NAOP-eligible students as underrepresented. The nine percent accounted for admissions in 2022 and 2023.

Committee Chair Park acknowledged that this was a smaller program but noted that GSM could attract more underrepresented students from the state, particularly the Sacramento and Davis regions. One hoped that all the efforts outlined would produce a program identity and value proposition that could be communicated.

Committee Chair Park moved to amend the recommendation to approve the UC Davis Business program's PDST proposal for a period of one year (2024–25) instead of five years. She invited the School to return with a qualitative account of the result of its efforts even if there was a quantitative lag.

Upon motion duly made and seconded, the Committee approved the amendment to the President's recommendation, Regents Anguiano, Batchlor, Drake, Hernandez, Park, Raznick, and Sarris voting "aye" and Regent Tesfai voting "no."

Upon motion duly made and seconded, the Committee approved the President's recommendation as amended and voted to present it to the Board, Regents Anguiano, Batchlor, Drake, Hernandez, Park, Raznick, and Sarris voting "aye" and Regent Tesfai voting "no."

3. **ASTRONOMY AT THE UNIVERSITY OF CALIFORNIA**

[Background material was provided to Regents in advance of the meeting, and a copy is on file in the Office of the Secretary and Chief of Staff.]

Provost Newman stated that, in 1888, UC began operation of the Lick Observatory, the most powerful telescope in the world at the time. Astronomers have taken some time to understand their responsibility toward the communities where astronomical facilities are located, and there was now a new and impactful commitment to include these communities. During her visit of the W.M. Keck Observatory staff in Waimea, Hawaii, Ms. Newman met with community elders, middle school science students, and Native Hawaiian members of the Keck Observatory staff, which has convinced her that astronomical work was impactful and had much potential. The University of Hawaii at Hilo (UH Hilo) was opening a new engineering school, which presented future opportunities for collaboration in fields connected to astronomy.

UC Observatories Director and UC Santa Cruz Professor Bruce Macintosh explained that the Decadal Survey on Astronomy and Astrophysics 2020 (Astro2020), a National Academies of Sciences, Engineering, and Medicine study, guided much of the University's current work. UC still engaged in education and outreach at Lick Observatory, but the centerpiece of UC astronomy was Keck Observatory, home to the two most powerful

telescopes on the surface of the Earth. Astronomy was studied at nine UC campuses, and the many awards won by UC astronomers included two Nobel Prizes. The Thirty Meter Telescope (TMT), the next major project for UC, would be able to do more than any current telescope, such as produce the first evidence of life outside of Earth. Construction for TMT, which was designed to operate on Mauna Kea, Hawaii, was stopped following protests from the Hawaiian community in 2019. The project has been working to build partnerships in Hawaii, listen to concerns, support education and development, and create programs that meet the needs of the community. A site in the Canary Islands also remained an option for the project. Astro2020 has recommended that TMT be a priority for federal funding, and the National Science Foundation (NSF) was carrying out an environmental and cultural impact survey. A review was scheduled this summer to determine whether the NSF would become a TMT partner. Like other member organizations, the Regents might need to approve funding and resources to maintain the project during this preconstruction phase, and the University would seek most of such funding from philanthropic sources. Mauna Kea was perhaps the best site in the world for astronomical telescopes but it was also of immense importance to the people of Hawaii. Mr. Macintosh acknowledged that, for decades, astronomers have made terrible mistakes in the way they operated on the mountain. UC, Keck Observatory, and TMT were working toward a new community astronomy model of shared decision making as recommended by Astro2020. UC planned to work with the NSF and the Mauna Kea Stewardship and Oversight Authority (MKSOA), a new State governance structure that gave the Hawaiian people a voice to determine the future of TMT and astronomy on Mauna Kea. In Mr. Macintosh's view, this was not a path to TMT, but he hoped it was a path to the right solution. The University has also engaged with Hawaii via Keck Observatory through workforce development like the Akamai Internship Program, which has placed over 500 students in technology programs, as well as through schools and community support. Rich Matsuda was recently selected as the first Hawaii-born Director of Keck Observatory.

Lizvette Villafaña, a UCLA doctoral student, began her remarks by sharing that she recently defended her doctoral thesis. The UCLA Galactic Center Group, led by Andrea Ghez, Professor of Physics and Astronomy, used the Keck Telescopes to study stars surrounding a black hole in order to determine its mass. Similarly, Ms. Villafaña and other astronomers studied supermassive black holes that accrete material by reverberation mapping, documenting the light emitted from gas clouds orbiting the black hole. Observation campaigns could last for months. Reverberation mapping allowed astronomers to measure black hole masses in the distant universe even though the stars orbiting the black hole were not visible. Ms. Villafaña has used echo mapping from the Lick Observatory to model gas surrounding black holes for nine galaxies.

UC Merced Assistant Professor Anna Nierenberg shared that she became a professor at UCM through the UC President's Postdoctoral Fellowship Program. Her research sought to understand dark matter, which, according to astronomical observations, was believed to be a new kind of particle that could not interact with ordinary matter and made up about 85 percent of matter in the universe. Although not visible, dark matter could be studied using gravitational lensing, a method of observing light distortion that was based on Albert Einstein's (1879–1955) theory of general relativity. Ms. Nierenberg's research was

uniquely possible thanks to the Keck Observatory. With its site, instruments, and the size of its telescope, she had one of the best measurements to study low-mass, dark matter structures. The Keck telescopes were larger and enabled research that is not possible with the James Webb telescope, even though the latter is located in space. TMT would be able to generate even more precise images and would further Ms. Nierenberg's dark matter research. Astronomical research has been shared with the community through public lectures, such as the one given by Jon Arenberg, chief engineer of the James Webb Telescope, and through events such as the super moon viewing on the Merced campus by 200 undergraduate students.

Regent Pérez, recalling his visit to the Keck Observatory, noted that there were two separate questions: what research was being done and could be done, and the "where" and the "how" of this research. Other TMT partners preferred Mauna Kea to the Canary Islands location due to Mauna Kea's proximity to those partners, as well as the relative difference in what is possible at these locations. The Board must consider all implications. Regent Pérez shared that he was troubled by his experience at Mauna Kea and meeting with Native Hawaiian leaders. He was particularly troubled by the history of UC and others not keeping the promises made regarding past telescope projects and emphasized the reality of the destruction of the mountain and the cultural impacts. Decommissioned telescopes were still in place, and there was discussion of remediation, not the delivery of past promises. Regent Pérez stated that, until there is clarity on how these past promises are delivered, he is unwilling to support any expansion or additional resources to proceed on TMT on Mauna Kea. Once there has been a conversation on how to deliver on the promises made, then it is essential for the Board to meet with Native Hawaiian leaders. He noted the limited interpretation of diversity, equity, inclusion, justice, and belonging and opined that a dismissive view has been taken of the cultural and spiritual implications of decisions about TMT because of different cultural perspectives. He highlighted the nuance and complexity of the issue and called for proceeding respectfully.

Regent Hernandez asked about the technical challenges and potential results of placing TMT at a location other than Mauna Kea, noting a possible third site in Chile. Mr. Macintosh replied that Mauna Kea unambiguously was the best site. In his opinion, performance in the Canary Islands would be worse but not catastrophically worse. Factors that would drive the decision included relative performance and the development of engineering and science workforces in the U.S. as opposed to overseas. These were considerations for the NSF and the U.S. Congress. Mr. Macintosh believed that UC should be one of the voices trying to find a just solution and emphasized the need to respect the community. A similar European project was being constructed in Chile, so there was a strong desire to have a telescope in the Northern Hemisphere and another in the Southern Hemisphere. A site in Mexico had also been considered, but the Canary Islands was the primary backup site. The consultation of the people of Hawaii by the NSF and MKSOA helped the project weigh the benefits and the harm of choosing Hawaii. The decommissioning of the Caltech Submillimeter Observatory had been slowed by the COVID-19 pandemic and bad weather but was near completion. Astronomers should identify more telescopes to remove from the mountain, which would involve the MKSOA.

Every telescope represented a cost to the people of Hawaii, and one must understand how to restore large fractions of the mountain.

Regent Tesfai echoed Regent Pérez's comments and asked how much community input and collaboration was occurring with the MKSOA. Mr. Macintosh responded that all members of the MKSOA's board of directors were Hawaiian, with the majority being of Native Hawaiian ancestry. Three were selected to represent cultural practitioners, lineal descendants, and other members of the Hawaiian community, and others represented various governmental bodies and educational interests. Mr. Matsuda was an apt choice to represent the perspective of astronomy because he was empathetic. Mr. Macintosh expressed hope that MKSOA would listen to these perspectives and bring them to outside parties. The MKSOA was also supposed to take over management of the mountain from the University of Hawaii in approximately four years, but the process has been slow.

Regent-designate Beharry stressed the importance of funding intersegmental programs like Cal-Bridge for physics and astronomy departments, which were constantly at risk of being cut. Ms. Newman replied that UC was investing heavily in these intersegmental programs, which were creating diversity pipelines within the state. As a member of the California Association for Research in Astronomy board, Ms. Newman met with Native Hawaiian elders and learned about progress in repairing damage that had been done in the past. She stated that Regent Pérez's observations were accurate; there was much hurt and a sense of disrespect. In Ms. Newman's view, there was also a new spirit of potential. Young people were invested in becoming scientists and were looking for a way to stay in Hawaii through employment at the Keck Observatory so they would not have to migrate from their native land. If TMT moves to the Canary Islands, these young people would be unlikely to follow. Ms. Newman suggested inviting some of them to meet with the Regents in order to understand the current sentiment. She recalled that one student, whose mother was a traditional Hawaiian teacher of dance, had earned an engineering degree on the mainland and wished solely to make a living in Hawaii.

Regent Sarris noted that he has worked with Ms. Newman on issues related to the Native American Graves Protection and Repatriation Act. He stated that one's feelings about sites do not change the fact that there is sacredness in ancient traditions. The University sat on California Indian land, where there was a genocide of 95 to 96 percent of the people. At the time of first contact with Europeans, Regent Sarris' tribe had 20,000 members. All 1,500 currently enrolled members of his tribe were descendants of 14 survivors, wives, or concubines from a period of legalized enslavement. He asked about the indigenous response to the shared model being presented. Mr. Macintosh responded that there was a range of opinions about the MKSOA across Hawaii. Some were unhappy about the slow pace of progress, some were worried that they would not be heard, and some believed that the MKSOA would provide a forum to reach a decision. Most people recognized that the TMT project was trying to do better, but it was harder to say whether people felt it was sufficiently better. Mr. Macintosh was trying to spend as much time as possible learning a range of opinions.

Regent Sarris praised the research being done but noted that the first law enacted by the Spanish in California was to stop controlled burning due to the belief that it interfered with raising cattle and horses. He underscored the result of such a law, noting that some people decide what is important for themselves while disregarding what is important for indigenous people and wider society.

Regent Anguiano asked what work was being done during the pause in construction and what necessitated the additional funding. Mr. Macintosh replied that the TMT project was being considered by the NSF, which requires the presentation of a mature design, an estimate of the total cost of the telescope, and a project plan. There were many non-construction tasks independent of the site. For instance, the 500 segments comprising the telescope's mirror would be constructed in partner countries like India and polished in California. The project conducted a study of a minimum operations model, maintained contracts and core technical staff, and was preparing for the discussion with the NSF.

Committee Chair Park noted that much has not been settled. Mr. Macintosh stated that there was much work that should continue irrespective of the final siting decision.

President Drake recalled meeting with Native Hawaiians the prior month; some were strongly supportive of the project and some would forever be opposed to it. UH Hilo had an opportunity to develop astronomy, technology that could support the island, and college-going. He spoke to the astronomy community about helping UH Hilo and the community regardless of where the final site is. President Drake underscored the need to decommission older, suboptimal instruments as a separate project. This would take many years, but it was important to restore as much of the mountain to its original state as possible. The ultimate siting decisions, which would be made by the MKSOA, in Washington, D.C., and in other places, were still in progress.

Chancellor Yang stated that the MKSOA, established by the State of Hawaii, included members who objected to TMT. Management of the project has been at UH Hilo for the last three years, and there has been daily outreach to protesters. The project had a team promoting science, technology, engineering, and mathematics (STEM) education for local Hawaiians, and was decommissioning an older telescope in order to build TMT on an existing site rather than a new site. If the NSF joins the project, UC would account for ten percent of the total partnership. One partner, the National Research Council Canada, has stated that it would not build TMT without the consent of Native Hawaiians.

4. **STEM PEER MENTORSHIP PROGRAMS AT THE UNIVERSITY OF CALIFORNIA**

[Background material was provided to Regents in advance of the meeting, and a copy is on file in the Office of the Secretary and Chief of Staff.]

Provost Newman began her remarks by thanking Regent Raznick for requesting this presentation. Peer mentorship has been shown to have a positive impact on student success and sense of belonging. Every UC campus had peer mentorship programs, which targeted

particular populations, majors, and disciplines and were run by students themselves. Peer mentorship programs in the science, technology, engineering, and mathematics (STEM) fields addressed retention challenges and had three core principles in common. All adopt asset-based approaches to STEM teaching and learning, building on students' strengths; seek to enhance the sense of belonging for mentors and mentees; and work to increase students' self-efficacy and self-authorship.

Linda Adler-Kassner, Associate Vice Chancellor of Teaching and Learning at UC Santa Barbara, stated that UCSB's Partner Educational Effectiveness Resources (PEER) program supported undergraduate peer mentors (UPMs) and undergraduate learning assistants (ULAs) in courses enrolling more than 100 students, especially in STEM. PEER was created in recognition of the correlation between systemic inequities and overall persistence, which affected UCSB's progress toward its 2030 graduation goals, and was a reflection of the campus' commitment to increasing equity and providing resources for students, faculty, and teaching assistants (TAs). Ms. Adler-Kassner presented PEER's principles of learning. The program should build on the strengths of learners and teachers. UPMs helped students learn to navigate institutional landscapes and the so-called "hidden curriculum," such as learning how to speak to faculty. ULAs provided modeling and tutoring for some of UCSB's most challenging courses, working with a smaller group of a TA's discussion section. PEER also offered pedagogical training for faculty and students. Faculty who received funding were also trained to mentor ULAs and UPMs, and students hired as ULAs and UPMs enrolled in a course taught by learning experts. In its pilot year, PEER provided wraparound support to 82 ULAs and 30 UPMs in 31 courses, who in turn worked with over 5,000 undergraduate students. A study indicated that participants in UCSB's Biology Mentoring and Engagement program were more likely to engage in beneficial academic habits that were associated with higher grades. Participants also had increased grade point averages in a targeted course and were 50 percent more likely to take the next course in the sequence. Numerous studies have shown that acting as a mentor increases STEM identity, self-efficacy and belonging, relational knowledge, and career identity.

Guadalupe Ruiz, Director of Transfer Initiatives and Professional Development at the Marlan and Rosemary Bourns College of Engineering at UC Riverside, stated that UCR offered college-specific and campuswide programming. She shared the core principles that guided the UCR peer mentorship model. Creating a strong sense of belonging allowed students to build their own support network of peers, faculty, and staff. Programmatic support increased students' self-efficacy and self-authorship, which allowed them to take advantage of professional development opportunities such as internships and undergraduate research. Students given rich experiences were also more likely to contribute to the peer mentorship program as alumni. Outreach and recruitment began at the community college level and was accompanied by a transfer support program that included pre-matriculation peer mentorship. Engineering transfer mentors were trained to identify resources, programs, or support mechanisms for students, and they also supported summer bridge programs, workshop development, and campus events. This academic year to date, the UCR Engineering Transfer Student Center has been visited 7,403 times, compared with 5,037 visits the prior year. This year to date, there were 324 attendees at

transfer program events, compared with 546 the prior year. Over the last ten years, an average of 51 percent of peer mentors have gone on to pursue graduate degrees.

Chancellor Wilcox praised Ms. Ruiz and her team and expressed pride in the UCR engineering transfer program.

Regent-designate Salazar relayed alumni's eagerness to support and mentor. Chancellor Christ had challenged the Cal Alumni Association to create a program pairing alumni mentors of color with students. The program has been very successful over the last three years.

Committee Chair Park asked how mentorship programs could be expanded. Ms. Ruiz replied that one must build trust as soon as students set foot on campus and establish long-lasting relationships. Engineering was challenging, so establishing a strong support mechanism and creating a sense of belonging has helped the program expand. Ms. Adler-Kassner added that UCSB identified points of need using data and worked with faculty, TAs, and various campus centers to scale up and provide support to programs.

Regent Tesfai asked how pre-transfer programming could be expanded. Ms. Ruiz stated that the College of Engineering had an outreach coordinator trained in transfer requirements as well as services and opportunities on campus. The coordinator connected with counselors at partner community colleges, offered one-on-one advising, created workshops and programs, and recruited peer mentors. Community college students also entered competitions at UCR with their peer mentors. Ms. Adler-Kassner added that some UCSB departments were creating pre-transfer programs as well. Popular majors engaged in mentor-based outreach at local community colleges and schools. Students are effective ambassadors for the learning experiences available at UC.

Regent Raznick thanked Committee Chair Park and Ms. Newman for their support of this item, as well as Vice President Gullatt, the presenters, and the UCSB Division of the Academic Senate. Regent Raznick found that the University had tremendous resources, assets, and services available, but learned from talking to students about the barriers to success, particularly for first-generation or underserved students. He asked how data could be used to address equity gaps and how programs were being resourced. Ms. Adler-Kassner responded that UCSB has developed a very robust suite of data tools to examine students' experiences as they navigate UC. Data tools were disaggregated by relevant metrics and focused on where students are coming from and going. For instance, most students entered UCSB through the College of Letters and Sciences. By using these as well as data tools from Institutional Research and Academic Planning at the Office of the President, the campus was able to pinpoint where and how additional support should be provided to students and faculty. Data have enabled UCSB to identify programs to develop. PEER did not have a permanent funding line, and UCSB was trying to identify how it could be incorporated into its institutional funding model.

The meeting adjourned at 4:20 p.m.

Attest:

Secretary and Chief of Staff