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**Fifth Year Review**

Self-assessment and Long-range Plans  
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**Introduction****CNAS' History**

The University of California, Riverside is founded on research. Since 1917, the foothills of the Box Springs Mountains have been the site of some of the most pioneering research and research collections in the world, underscored with the founding of the Citrus Experiment Station. In 1959, agricultural and natural sciences were brought together to create one of the only colleges in the nation to reap the rewards of interdisciplinary research across all the sciences. Today, CNAS is home to world-renowned scholars pursuing research that deepens our knowledge of the universe and improves the quality of life throughout the state, the nation, and the world. Our geographical location is a great asset in — and living laboratory for — our focus on the growing challenges facing the world. Located in the heart of densely populated Southern California, CNAS faculty and researchers tackle critical issues for our region that also are of global significance.

In addition to our 13 academic departments, CNAS also comprises ~1000 acres of Agricultural Operations (AgOps), ~28,000 acres of Natural Reserve System (NRS) sites and ~40 acres of Botanic Gardens. Our unique organizational approach encourages an extraordinary degree of collaboration, reflected in our numerous interdisciplinary research centers, institutes, and cooperatively taught degree programs. An atmosphere of intimacy and excellence, diversity and distinction, as well as prestige and scientific preeminence attracts top faculty and students from across the country. Today, this research and teaching enterprise includes nearly 1000 faculty, staff and researchers, and >8,000 undergraduate and graduate students.

CNAS is the only college in the University of California (UC) system where the science departments coexist in one organization – physical sciences, life sciences, agricultural sciences, math and statistics. At other UC campuses, there is usually a dean for each of the three Divisions, the Botanic Gardens and NRS would report to other campus entities on campus, and agricultural would be its own school. Relative to comparable public land-grant institutions, CNAS is one of the few colleges where all the sciences exist under the auspices of one college's infrastructure and this coexistence leads to a more complex, more comprehensive, and more robust enterprise that directly impacts our community.

**Performance Goals**

Upon my arrival in January 2016, I created a 5-year plan that would build upon CNAS' historic strengths; foster creativity, discovery, and innovation; strengthen our inclusive, diverse learning culture; and enable novel solutions for major societal challenges such as feeding a growing population, exploring the galaxy, improving healthcare, advancing renewable energy, and addressing climate change.

***My vision for CNAS is to attract and retain the best faculty who will lead our students to success and to expand what we, supported by our staff, do well while serving the university's mission.*** For the past five years, I've advanced this vision and elevated the status of CNAS by focusing on areas that would advance CNAS and also advance UCR.

Upon my arrival in January 2016, I created a mission statement for CNAS – with input from my academic leadership (Department Chairs and Directors) as well as the Dean's leadership team. ***CNAS' mission is to expand scientific knowledge and apply that knowledge through teaching and public service.*** CNAS has a long and successful history of creating and disseminating knowledge; we will continually adapt our approaches to serve the needs of our constituencies.

***My goals are to increase faculty visibility, improve student success, and connect our community all while promoting inclusive excellence.*** Below, I'll address our accomplishments to-date on these goals, which are pursued in the context of CNAS' mission.

## **Internal/External Goal: Increase Faculty Visibility**

### **Hire Stellar Faculty**

Since January 2016, CNAS has hired renowned faculty – the majority through the Cluster Hire Initiative. In 2019, we recruited two Nobel Laureates, Dick Schrock (Chemistry) and Barry Barish (Physics & Astronomy) onto our faculty. As first-generation college students, both aligned with the mission of UCR. Both Nobel Laureates have been actively engaged in graduate student research, teaching undergraduate and graduate students, and recruiting faculty for UCR. Over the past five years, CNAS has hired over 110 Cooperative Extension (CE) specialists, professors of teaching, assistant professors, associate professors, and full professors.

The bulk of the faculty hiring has been through the cluster hires, initiated by campus in 2014-15 and implemented in 2016. With the cluster hires, assistant professors now comprise approximately 1/3 of CNAS' faculty. Compared to national average of 29 %, this composition provides a unique opportunity to shape the future of CNAS by providing junior faculty with opportunities for grant collaboration and leadership.

### **Enhance Faculty Profiles**

In 2018, I formed a CNAS Awards Committee with representatives from all 13 Departments with the goal of increasing the number of awards/honors for CNAS faculty. The Awards Committee was tasked with developing best practices to include: dissemination of information about opportunities; encouraging faculty to use campus support programs for application assistance; managing nomination and review processes, including attention to quality letters of support as well as opportunities for pre-submission review by peers when applicable; and discovery of previously untapped awards/honors/prizes/grants opportunities. A short-term outcome from the first few meetings was the exchange of ideas and best practices between Departments in how to promote and nominate their faculty.

In addition to sharing best practices, the Awards Committee also meets to review and prioritize CNAS research awards such as the Delfino Innovative Agricultural Grants. The Delfino grants emanate from a philanthropic gift to CNAS that supports research performed by a CNAS PI and a BCOE co-PI. We award 2-3 teams each year (\$50K/yr) and also have raised philanthropic donations to support industrial hemp research (\$10K/yr). The latter project is based on the identified need for CNAS to take a role amongst the UCs that has the potential to conduct research to regulate the effects of growing cannabis/hemp in the State, as no other public institution is researching the environmental implications

of the crop. I assigned a team of junior faculty to this project who've been writing grants and learning how to optimize their research based on timely societal needs of the State.

In February 2020, the Awards Committee was tasked to develop a process for appointing CNAS Endowed Chairs. At that time, CNAS had seven open Endowed and Term Chairs (Harry W. Johnson, Hartland H. Schmidt, F. Burton Jones, Wilbur W. Mayhew, Singletary Family, Campbell's Inclusive Excellence and Campbell's Teaching, Research & Service Chairs). The Awards Committee helped to develop the process and procedures to nominate, evaluate and appoint the Chairs (**see Attachment**). After nominations were received, the Committee reviewed the nominations materials and made recommendations on appointment. We now have procedures in place to ensure that we have a transparent nomination and evaluation process for named Chairs, creating and deepening a sense of buy-in and collaboration amongst faculty and college leadership.

### **Promote Faculty Recognition**

Our faculty continue to be recognized for their research contributions. While serving as Dean, several faculty received accolades for their accomplishments. CNAS faculty have been recognized by the National Institutes of Health Director's New Innovator Award, Sloan Research Fellowships, Fulbright Awards, American Association for the Advancement of Science Fellows, and Presidential Early Career Award for Scientists and Engineers. Of note is the recognition of our junior faculty, 12 CNAS faculty have received National Science Foundation (NSF) CAREER Awards in the past five years; these are amongst NSF's most prestigious awards that support early career faculty who are academic role models in research and education. Our more senior faculty are internationally recognized and respected; we now have 12 National Academy of Science members, 2 National Academy of Inventors Fellows, and a Fellow of the German National Academy of Sciences Leopoldina.

### **Increase Research Funding**

By increasing peer-reviewed grant support, we enhance faculty visibility. With funding from the Dean's Office, CNAS recruited—and annually funds—a dedicated staff position (“Grants Facilitator”), who works with faculty to improve the success of our grant applications. The primary focus of the grants facilitator is to assist junior faculty with grant-writing and provide peer review, and secondarily to facilitate forming cross-disciplinary teams for major state and federal proposals. Further, CNAS set up a working group amongst CNAS contracts and grants analysts to share best practices and solutions. The working group meets quarterly and works with the Office of Research and Economic Development (RED) to include staff across campus.

Over the past decade, CNAS funding has steadily increased thanks in part to CNAS' Grants Facilitators, Jan Roselle (now at Pomona College), Helen Chen (now at University of California, Irvine) and our current teammate Ashley Beene. We now account for ~55% of total UCR awards in numbers and dollars. In FY20, we were awarded nearly \$100M in funding, which is a 40% increase from FY16. This funding showcases results from consistently communicating the importance of research grants to junior and senior faculty alike, and the impact of a grants facilitator hired to help faculty with the grant-writing and submission processes.

### **Recognize Cooperative Extension (CE) Faculty**

Many CNAS faculty hold partial or full CE appointments, yet did not feel a sense of equity compared to our Academic Senate faculty peers. Led by Divisional Dean Tim Paine, we made a concerted effort to recognize and validate UCR's CE faculty who make important contributions to the CNAS mission – and the campus as a whole. With the unanimous support of the CNAS Executive Committee, CNAS submitted a request to the Provost to create the local title “UC Riverside Professor of Cooperative Extension X” (where X is the name of the discipline or specialty) for use by UCR's UC Cooperative

Extension Specialists. The Provost approved the new title in 2020; the change serves as an example systemwide and was embraced by UCR CE specialists as well as UC Davis, UC Berkeley and UC-systemwide Agricultural and Natural Resources (ANR) faculty.

To eliminate one disparity in the merit and promotion process between CE Specialists and Academic Senate faculty, CE Specialists will now be eligible to be considered for Career Reviews. Starting this 2020-21 review cycle, we will use a modification of the process currently being used by Senate Faculty.

### **Build Research Infrastructure**

By providing a world-class research infrastructure, we enhance faculty visibility and opportunity to pursue novel research projects. Upon my arrival in January 2016, the need to better manage facilities and renovations for incoming faculty was one of the most urgent issues and has remained so during my tenure. With the rapid growth in faculty and the aged, historic state of our buildings, CNAS had been struggling with lab renovations since summer 2016 with the dramatic increase of new faculty arriving via the cluster hires. For example, in 2017, we had over 40 major renovation projects logged in UCR's Capital Projects Management System (CPMS) and nearly 400 work orders for repairs/maintenance in the UCR facilities management system. This amount of backlog was unprecedented and nearly impossible to manage; the backlog had a tangible impact, it was an impediment to meeting our teaching and research mission.

To better manage CNAS' space, I formed a CNAS Research and Instructional Space Committee in 2017. The Committee was tasked with developing guiding principles for managing research and instructional spaces within Departments, within CNAS and with campus. The Committee outlined principles (*see Attachment*) applied to meet CNAS' academic mission in research, teaching and service. The Committee noted that the main goal for research was to increase faculty success; for teaching, the goal is to optimize the use of instructional space to best enhance student learning outcomes.

A CNAS safety staff position was elevated to be the space, facilities, and safety liaison between CNAS and campus units engaged in facilities management, safety, construction and renovation. With CNAS' facilities liaison, Deborah McWilliams (now a UCR retiree), we evaluated usable space from approximately 1.6 million assignable square feet (asf) of CNAS-identified space and worked to accommodate the incoming faculty. We continue to strategize on cost-effective and time-efficient ways to accommodate research and teaching needs in the near- and short-term. Working very closely with Vice Chancellor Gerry Bomotti and his senior staff, we developed a plan to renovate 'back fill' space as temporary surge space for CNAS faculty, staff and students.

CNAS has also had success in our efforts to expand our research infrastructure. In 2018, CNAS replaced two small unusable greenhouses in Agricultural Operations (Ag Ops) land (Field 16) with a new, expansive, updated greenhouse. This project costs the Dean's Office over \$400,000 using private donor contributions, and was the first new greenhouse structure to be built by CNAS research in decades. In addition to the new greenhouse on Ag Ops land, CNAS supported the renovation of space - and the procurement of equipment - for a new growth chamber facility ("Boyce Cage Growth Chambers") housing 4 double-wide state-of-the-art growth chambers. Working closely with Vice Chancellor of RED Mike Pazzani (now retired), CNAS acquired and allocated state and local funding to purchase and house the growth chambers. These chambers are currently assigned to faculty from 4 different Departments who all are involved in citrus-related research. In 2019, ground was broken for the first new greenhouse research building built on main campus in nearly 40 years. The Plant Research 1 building will offer high-tech, climate-controlled greenhouse space and lab support space in a 30,000 square feet, 2-story laboratory facility. The upper story is separated into 16 different modules to allow for different climate zone ranges by controlling humidity, temperature, and lighting – all via wireless technology. The upper story also houses a shared wet lab space. The bottom story

has preparation areas for receiving and preparing plant materials, with the majority of the space planned to accommodate cannabis research. The \$25M plant research building was supported by a gift of \$1.5M from an anonymous donor and will maintain CNAS' leadership in agricultural research.

## **Internal Goal: Improve Student Success**

### **Grow Graduate Programs**

As of Fall 2020, our total student enrollment in CNAS was ~7700 students. Of this population, the majority were undergraduates (~6700) followed by PhD students (~980) and then MS students (~20). In leading the campus in efforts to achieve Association of American Universities (AAU) status, CNAS needs to increase our graduate student enrollment mostly at the PhD level, but also at the MS level as a feeder into our PhD programs.

CNAS Divisional Deans, Chairs, and Directors have been exploring plans to grow all our graduate programs in a sustainable and equitable fashion. For nearly two years (2018-20), the Interdepartmental Graduate Programs (IDGP) workgroup led by Divisional Dean Francey Sladek has been strategizing on how to support these programs. In 2019, CNAS had to make a difficult decision about a decades-old mechanism to support students, e.g., distributing Graduate Student Research (GSR) funds to selected graduate programs. While the budget provided the context, the driver for the allocation change was academic; we need to grow *all* our graduate programs in a sustainable and equitable fashion.

### **Support Undergraduate Student Success**

CNAS has been diligently working to meet the 2:1 freshman to transfer student ratio recommended by the UC system. By admitting transfer students in winter quarter (which we had not done previously) and by holding spots in 'pinch point' classes, our ratio has progressed. While Fall 2020 freshman application rates to CNAS are up 11%, transfer student rates are also up 20%. While this progress is positive, we need to continue our efforts to recruit a higher number of transfer students into CNAS.

An important CNAS tool for undergraduate retention is inclusion in our learning communities (LC). Compared to 65% last year, this year nearly 70% of entering CNAS freshman join a yearlong cohort of 24 students. By joining a LC, we observe that retention in the sciences in the second year is ~95%, which is higher than the students who do not join a LC. And significantly, LC participants have 6-yr graduation rates of ~75% compared to ~40% for students who are waitlisted (i.e., they applied to participate in LC but we had insufficient faculty mentors to take these students). We continue to refine the program, building on faculty mentors and reviewing the specific practices that bolster our students' successes with support from campus.

### **Manage Student Scholarships**

As CNAS' fundraising has become more successful in the past five years, we realized that we were limited by the process in allocating these resources. We discovered that several donor scholarships and awards were not provided to students because the review process was not user-friendly. To better manage the scholarships already in place, we invested in a scholarship management system (Academic Works) that matches students with scholarships for which they are eligible (e.g., GPA, major or other relevant criteria) and sets up an online evaluation tool for faculty to review applications. The transition was led by CNAS' Chief Financial and Administrative Officer Jennifer Farias and in collaboration with Development, ITS, and Student Services to implement this system. When the platform was ready for use, we launched a marketing campaign to ensure that students applied (applications annually due October 31). For the first time in CNAS' history, we awarded all scholarship

funds that were available in 2019. We saw an increase from 142 to 1100 student applications and went from awarding \$45K to awarding \$108,989. This program has gained the attention of other campus units and can be adopted as the campus standard. For the October 2020 cycle, we added two departments (Chemistry and Biochemistry) into the system and we now have ~50 scholarships and ~\$120K in funding to disseminate this year.

### **Expand Online Courses**

Even before COVID-19, we were aware that by increasing the number of online courses, we could further improve student graduation rates for freshman and transfer students who can take courses off-sequence. Online courses can also increase access for working/commuting students as well as non-traditional students. Led by former Divisional Dean Umar Mohideen, we worked with Departments to increase the number of online courses available to our students. Since 2017, over a dozen online class development grants were submitted and microtutorials for chemistry, math, geology and physics were prepared. Even before COVID-19 forced all courses online in March 2020, CNAS faculty had made significant progress in the number of online courses available. As an example, CNAS faculty submitted multiple ILTI proposals– of which 22 were funded in 2017 alone. Online courses are key to time-to-degree for our students, and thus a continued area of focus for CNAS – even after the COVID-19 crisis passes.

### **Increase Research Opportunities**

For undergraduate students, particularly first-generation students, the more hands-on research opportunities afforded, the better improved their chances of professional and academic development at the next step – whether that be acceptance into graduate programs, placement into industry, or serving on government agency. We are proud that a majority of our undergraduate students (>50%) participate in a research lab during their time in CNAS. To further increase participation, we encourage UCR faculty to mentor students in the lab and also develop external partnerships. Student research opportunities are a key focus for my fundraising team and some examples are listed below.

## **Internal/External Goal: Connect our Community**

### **Enhance Communications**

While CNAS had a communications director prior to 2016, the role was elevated in 2017 to enhance communications for both internal constituents and external stakeholders. CNAS' former Communications Director Bryan Schneider (now at Port5 Communications) and our current Communications Director Joann Young respectively created and implemented CNAS' first communication strategy to support CNAS goals. Well-developed communications plans to support the college and each unit are continually being developed to better align the UCR brand identity and the CNAS narrative. CNAS' Communications Director Young frequently meets with CNAS units to develop and implement communications plans to support a wide range of events, projects, campaigns, etc. that in turn, helps the college to achieve our goals.

As an example of an internal focus, starting January 2018, CNAS held a state-of-the-college address to which all faculty and staff were invited. The presentations are later shared with the college community. As an example of an external focus, in August 2017, a "hot" Huanglonging (HLB)-infected tree was detected in Riverside, putting UCR's citrus lands under quarantine. CNAS created a FAQ page on HLB, using this news as an opportunity for concerned citizens to learn about the disease, and draw attention to UCR's research to manage the tree-killing disease.

Storytelling is key in communicating CNAS initiatives and successes. We are increasing the number of student and faculty research stories and the platforms we use to share our stories. Original content developed in the form of written stories, videos, and photos have and will continue to support my goals and objectives to enhance faculty visibility, showcase the student experience, and connect with the campus community.

To better communicate about our growth and success, CNAS embarked on a website redesign project. With the campus' move to new web platform (Drupal), CNAS took the opportunity to rethink, review, and redesign our CNAS and Departments websites. This project included over 4000 webpages, a rather significant number. We are making progress, but it will take time to complete the process.

Starting Summer 2020, CNAS now broadly disseminates a bi-weekly newsletter (instead of quarterly) that engages our external constituents on a consistent basis and in FY21, we will partner on an annual Dean's Report that will be sent to key stakeholders, including other UC agriculture, life sciences, and physical sciences deans. Especially when we are isolated due to COVID-19 closures - at home yet still working - we have ramped up and coordinated our communications to our faculty, staff, students, and community members.

### **Connect to Our Community**

Community outreach examples include the annual Science Lecture series. The most recent in-person series was the highly successful "First Generation" CNAS Science Lecture series that featured 4 first-generation faculty (two of whom were our Nobel Laureates) who were introduced by first-generation students and/or faculty. Roughly 1400 people attended this Science Lecture Series in 2019, making it one of the best turnouts ever in the series' history. These lecture series have been a great success for CNAS and we will continue the tradition remotely until we can safely offer the program to an in-person audience.

### **Amplify Our Philanthropy**

Underpinning all these accomplishments and goals is the need for additional resources. Resources include additional grant funding (as indicated above) as well as philanthropy. With CNAS' history, we have a large pool of 30,000 living alumni as well as parents, friends and constituencies who value CNAS. In August 2020, CNAS surpassed our \$100,000,000 *Living the Promise* 8.5 year campaign goal which was to be achieved by December 31, 2020. Closing out FY20, CNAS raised \$13,035,435 in spite of the pandemic's effect on philanthropy and was the highest dollar amount raised since 2016.

One of my first significant objectives upon arriving at CNAS was to create strategic fundraising plan (**see Attachment**) and hire a fundraising team which is now comprised of three fundraisers (four once the hiring freeze is over) and a development coordinator. With the October 2016 public launch of UCR's first ever comprehensive campaign, it was imperative to generate a strategic fundraising plan for CNAS that aligned with UCR's fundraising campaign. To develop this plan, I quickly began engaging faculty. During the CNAS Chairs and Directors February 2016 meeting, we completed a Strengths/Weaknesses/Opportunities/Threats (SWOT) analysis where all participants were asked to address specific questions about funding needs. At the March 2016 meeting, participants were asked to rank-order the priorities generated from the February discussion. From March-July 2016, I began meeting with CNAS alumni and friends to ask for input on the general ideas internally generated by CNAS. To develop this plan, it was critical to ensure that all faculty were engaged, which was achieved by direct interactions at our monthly meetings as well as individual meetings with all 13 departments.

By June 2016, we'd prepared a draft for internal distribution and so began focusing on assembling a team to implement the plan. Unfortunately, CNAS did not have a senior fundraiser from February-October 2016, as the lead fundraiser was out on medical leave. In late November 2016, we recruited

a senior fundraiser and began to aggressively co-create an implementation strategy to: a) develop relationships with alumni, b) engage alumni on campus, and c) recruit members to CNAS' Dean's Development Advisory Board (DDAB). Leadership of the fundraising team has been somewhat transient - we began with Joann Anderson (now retired), then followed by Meredith Johnston (now UCSD's Scripps Research Institute). Our fundraising team is currently led by Assistant Dean of Development Dounia Sadeghi who strategizes new ways to engage our donors and friends. With the early achievement of our *Living the Promise* campaign goal, CNAS is well poised to generate significant, consistent philanthropic support for our mission.

CNAS continues to innovate in our appeals and event-planning for donors. I continue to teach CNAS Learning Community (LC) seminars in both fall quarters to freshman and in spring quarters to transfer students. For these LC seminars, I invite alumni speakers to share their personal and professional stories and how UCR and CNAS impacted their lives. We've also hosted dozens of targeted alumni and donor engagement events in person and most recently, a new quarterly Zoom event, "Let's Talk Science" where I engage in Q&A sessions with alumni. These opportunities allow for my fundraising team to provide experiential opportunities to alumni during the prospect cultivation process, which has proven impactful for CNAS in achieving our fundraising goals.

### **Examples of Fundraising Events and Appeals**

The fundraising team engages prospects and donors through targeted online and mail appeals for specific areas of giving, such as a department fund, memorial fund, or targeted need. These appeals not only help increase the number of donors and gifts made to the college on an annual basis, but are a way for the team to create a pipeline of major gift donors (\$25,000 and higher) as a result of first-time donors signaling an interest in giving. The team then conducts research on all first-time donors to assess capacity and propensity and in turn, individualized strategies are created for engagement. Tours of campus, meetings with me/divisional deans/department chairs/faculty/students are scheduled throughout the year and these one-on-one cultivation efforts allow us to learn about a someone's interests and motivations.

The fundraising team hosts several cultivation events throughout the year. Past examples include receptions with our Nobel Laureates, inaugural chairholder events, and a biannual event that engages emeriti faculty. As a result of these engagement events, the team has closed major gifts from ten retired faculty in the last two years. Now that we are limited by COVID-19, the team has pivoted to using Zoom platforms for both individualized and wide engagement, which has allowed us to reach potential donors who were otherwise not able to attend due to the difficulty of traveling to campus due to traffic or proximity.

### **Examples of Noteworthy Gifts**

CNAS has attracted many gifts to support our research; one example is the \$3.5M gift from Givaudan, the world's largest company in the flavor and fragrance industries. This gift recognizes the importance of our living library, the Citrus Variety Collection (CVC) by allocating \$1.5M for infrastructure to protect the library from pests and a \$2M endowment to support the collection in perpetuity.

To support our undergraduate students, new philanthropic support includes a \$1,250,000 gift to establish the Harper Family Scholarship endowed fund for merit-based student scholarships; this gift is the first merit-based endowed scholarship for CNAS. Another example is a \$25K gift to establish the Sher Family Science and Math Initiative Endowed Fund; this gift is the first endowed gift ever to the Science and Math Initiative (SMI) program and will support participating students at the program director's discretion. CNAS' Research in Science and Engineering (RISE) program was recently endowed for the first time in the program's seven-year history at the \$1,000,000 level, provided a \$260,000 current-use pledge and a \$90,000 current-use pledge to support the program over five years.



To support our graduate students, the Leonard Family Foundation Graduate Scholar Fund was established for \$100K to support PhD students. I asked my fundraising team to focus on graduate student support and this request resulted in a \$15,000 pledge over three years for a graduate student scholarship as well as three planned gifts for graduate student support totaling \$650,000. The gift that closed CNAS' \$100M campaign goal was a \$600,000 bequest from an emeriti faculty member who wishes to support graduate and undergraduate students in the Physics & Astronomy Department.

With concerted collaboration with my fundraising team, I raised CNAS' largest gift to date, a \$5M endowed gift in environmental sustainability and conservation. The anonymous donors gave CNAS the flexibility to allocate the funds as needed at the discretion of the Dean. I intend to use funds from the first year of the endowment's distribution to support graduate students working in sustainability and conservation fields.

### **CNAS Dean's Development Advisory Board (DDAB)**

In 2018, the previous CNAS Advisory Board and Chancellor's Agricultural Advisory Committee (CAAC) were both dissolved and a new CNAS Dean's Development Advisory Board (DDAB) created. Unlike previous committees and boards, incoming AB members agree to the operating principles and minimum giving requirement to support CNAS' mission. For this DDAB, John and Elizabeth Leonard (John is a UCRF Trustee) graciously agreed to be the committee co-chairs; with them, CNAS aids in setting the agenda and recommending additional board members. The current members include eight UCR alumni and friends who are committed to enhanced support and visibility of CNAS.

In 2020, we added a new board member to the CNAS DDAB and all eight members made gifts in FY20, with three committing to planned gifts. CNAS board member Allison Mackenzie was nominated by my fundraising team to the UCR Foundation Board and will start her term as a Board Trustee in Fall 2020.

### **Develop Industrial Relationships**

Under my current leadership, CNAS is pursuing multiple pathways to connect our students, both undergraduate and graduate, with industrial partners. While we identified alumni working at companies who could provide internships, we decided to take another approach – host events at companies with a large number of CNAS alumni to energize their interest in UCR and encourage any collaborations. Two significant outcomes of this effort were collaborations with Amgen and Genentech. In February 2018, we held a CNAS alumni event at Genentech (San Francisco) with coordinated outreach with a high-ranking Genentech CNAS alum. About 15 people attended the lunch, with an open exchange of ways to engage UCR and provide student opportunities. In April 2018, we held a similar event at Amgen (Thousand Oaks) hosted by a high-ranking Amgen CNAS alumnus. Again, about 15 people attended the cocktail hour where we learned that Amgen was setting aside 3 internships specifically for UCR/CNAS students (of ~40 provided across the US each year). In May 2018, 4 Amgen employees/CNAS alum visited campus and met with students and toured campus facilities. Within a span of a few months, we initiated conversations with Amgen that started by meeting alumni that translated into highly competitive internships for UCR students.

With input from Development, CNAS recruited a director of development who will interface with companies that have the capacity and propensity to give to CNAS on a philanthropic level. This director will also be working with the Career Center to ensure that the companies will connect with CNAS students for internship opportunities as well

## Serving the UCR and UC Communities

In 2019, I chaired the Search Committee for UCR's Vice Chancellor of Research and Economic Development (VCRED) (SP19-S19). This search successfully concluded with hiring Dr. Rodolfo Torres for the VCRED position and his equally successful partner, Dr. Estela Gavosto, into the Mathematics department. As the VCRED search was concluding, I was invited by then-UC President Napolitano to represent UCR as a member of UCOP's Vice President for Research and Innovation Search Committee (SP19-F19). This Committee gave me the opportunity to learn more about research and entrepreneurial programs across the UC system.

Since Spring 2020, I've been asked to serve on UCR's Budget Advisory Committee (BAC). This service gives me a unique opportunity to learn about every unit on campus and learn about their needs. In the time of COVID-19, this committee's work is even more difficult and complex.

Starting July 2019, I co-chaired the Commencement 2020 Committee with VC of Student Affairs Brian Haynes. In early 2019, campus recognized that we needed to consider innovative solutions to accommodate our growing commencement ceremonies. The Committee was tasked to consider many options to celebrate the accomplishments of our graduates; we considered location off and on campus. In the end, COVID-19 changed our plans – and the Committee was reconvened and pivoted towards finding ways to virtually celebrate our graduates.

Since 2016, I've been actively engaged in the Agricultural and Natural Resources (ANR) Advisory Committee. While this role was traditionally filled by a Divisional Dean in CNAS, I wanted to elevate UCR's standing and work to be an active representative of CNAS, UCR and southern California's agricultural community.

## Internal/External Goal: Promoting Inclusive Excellence

### Inclusive Excellence Begins with Leadership

Of 13 CNAS Departments, 6 are led by women (46%). Last year, the CNAS executive committee was led by a woman and this year by a Latino male. My 4-person academic team includes 2 women and 1 Latino, all who continue to contribute to UCR's teaching and research mission. Inclusive excellence is key to CNAS' continued and future success. Of 9 faculty hired in 2019-20, 5 (56%) of these new faculty were members of under-represented minority (URM) groups.

In addition to diverse faculty hiring and leadership, CNAS has developed other initiatives to promote diversity and inclusivity. As one example, we continue to support CNAS Equity Advisors in the College who are integrated during the hiring process and review our hiring practices. We continue to nurture our junior faculty, through focused grant-writing sessions as well as multiple "Coffee with the Dean" sessions to discuss academic and personal concerns. Mentoring from the Departments and the Deans Office may be paying off - note that 5 of 7 NSF CAREER awardees were from underrepresented groups (see *Promote Faculty Recognition* above).

CNAS also submitted an Advancing Faculty Diversity (AFD) proposal, funded by UCOP, to increase our faculty diversity. Two physical sciences departments, Physics & Astronomy and Chemistry, were chosen for this proposal because of their central importance to the academic mission of the College, and achieving a balanced faculty diversity profile will have a large and positive impact on our students. In addition, these two departments are some of the least diverse in CNAS: the percentages of UR and women faculty in Chemistry are only 3% and 18%, respectively; the percentage of under-represented groups in these departments is 21%. Physics & Astronomy (P&A) has 16% women and 14% UR faculty; the overall percentage of under-represented groups is 23% (these numbers worsen to 12%,

12% and 21%, respectively, if the Astronomy faculty are excluded). These numbers, especially those for women faculty, are significantly below the college average of 26% and must be improved.

With the looming financial crisis, UCR asked colleges to slow, if not halt, faculty hires. Faculty in the physical sciences typically require relatively large start-up (aka initial complement) packages around \$1M for junior faculty and ~\$2M for senior faculty. Thus, continuing our plans to bring 4 new faculty to campus was not fiscally responsible. Nonetheless, we must continue to build a pipeline for inclusive excellence; a pipeline of excellent scholars who represent the diversity of our State. Working closely with Susan Carlson (DEI, UCOP) and Divisional Dean Jose Wudka, CNAS proposed to use the AFD funds as financial support for PhD students who are interested in faculty careers and whose research, teaching, and service will contribute to diversity. This request is aligned with the overall goal of building a pipeline of highly qualified faculty with focused contributions to diversity. In the original AFD proposal, funding was allocated for an additional year of postdoctoral support for the AFD junior hire. Instead of supporting postdoctoral associates, CNAS will redeploy the AFD funds to support senior-level PhD students who have completed their qualifying exams, have interest in pursuing faculty positions, and whose research, teaching, and service will contribute to diversity. PhD students who have advanced to candidacy will be eligible, with a preference for those within one year of graduating. Criteria for choosing the students will be modeled after the UC Presidential Postdoctoral Fellowship Program (PPFP), for which our faculty serve as reviewers. As for PPFP, the goal of our modified program is to provide “professional development and faculty mentoring to scholars whose research, teaching, and service will contribute to diversity” at UCR. These positions will be noted as *Provost’s Scholars for Advancing the Physical Sciences*.

In addition to the faculty hiring challenges brought about by the current budget crisis, I am concerned with faculty retentions. As Dean, I manage the needs of CNAS within the framework of campus directives. Over the next few years, faculty hiring may be extremely limited but faculty retentions are likely to increase – particularly the phenomenal junior faculty we’ve hired.

With Vice Chancellor and Chief Diversity Officer Mariam Lam, I represent UCR as a founding member of the National Academy’s Action Collaborative on Preventing Sexual Harassment in Higher Education. This collaborative was formed at the behest of the National Academies and includes >60 institutions to address and prevent sexual harassment by sharing best practices. Since Spring 2019 at the first Action Collaborative meeting in Washington, DC, the forum has provided evidence-based practices on a near-weekly basis to promote a campus climate of respect.

### **Revise Compensation for Faculty Administrators**

Within CNAS, we developed metrics to fairly and equitably distribute stipends for faculty administrator (Chairs, Divisional Deans, and Directors) starting in 2017. For Departments, we determined two general metrics – research and teaching expenditures. This refinement was important to ensure equity across the Departments. In the previous method, a Chair’s compensation was correlated to salary; such that a faculty member who chaired a large, research active department may be compensated less than a more senior faculty member who chaired a smaller department. In addition to a more equitable compensation, Department Chairs as well as Divisional Deans were enabled to choose how they allocated the compensation – whether they chose to support a graduate student or to take summer salary, the choice was made by the Chair-holder. This compensation structure provided flexibility and was the first on campus. Thus, CNAS’ CFAO Farias worked closely with UCR’s HR, APO and Provost’s offices to create a template for CNAS’ Chairs and Divisional Deans to choose how to allocate their compensation including vice chair stipends, research support or summer salary to meet their needs.

For Director compensation, the metrics were not as simple. Nonetheless, I instituted reviews for each program or center that was financially supported by CNAS. In summer 2017, we began our first round of “speed reviews” where each director has 15 minutes describing how their program is meeting research, teaching and service mission of campus followed by 15 minutes of questions. We have continued the reviews as they provide an opportunity to give feedback to directors as well as to update the CNAS Dean’s office on their accomplishments.

## **Additional Internal Accomplishments and Initiatives**

### **COVID-19**

With the onset of the COVID-19 crisis in March 2020, our academic plans changed and our lives disrupted. On Friday, March 13, UCR was informed by Riverside County that we could no longer allow students, faculty and staff on campus. By Monday, March 16, we closed down our research labs and completed the Winter 2020 quarter remotely. Our first priority was to be safe. Our next priority was to plan for remote teaching for the Spring 2020 quarter. And the next priority was to plan for in-person research on campus.

With faculty collaboration, CNAS created a Critical Preservation of Research (CPR) Work Group. This group met to determine what criteria faculty should follow to perform research safely, for research that was deemed essential. Put simply, anything that needed to be “fed” was essential, from multimillion dollar instrumentation that requires cryogenic liquids, to insects that have been bred for generations, to animals in the vivarium, to decades-old trees on AgOps. To ensure full transparency and sharing data, we created an online approval form where faculty would input their research plans that were then approved by Department Chairs, and then by the Dean’s office. We worked very closely with EH&S to insure that faculty were meeting known safety requirements and that this information was disseminated.

Again with faculty collaboration, CNAS created a COVID Testing Work Group. The college has scientific leaders who specialize in detecting viral diseases and they pivoted their expertise to testing for COVID-19 rather than testing for Zika virus, for example. Appointing co-leaders Dr. Kathy Borkovich (Chair, Microbiology & Plant Pathology) and Dr. Isgouhi Kaloshian (Chair, Nematology) proved beneficial as they linked scientists from across CNAS, engaged with the UCR committee on testing needs and requirements, and coordinated with Student Health Services and SOM to successfully build a temporary testing facility located in MRB1. Working closely with VCRED Torres, the CNAS team opened up a diagnostic lab that can test ~600 samples/day with results available within 24 hours.

To address CNAS’ instructional needs for lab courses, field courses, and lectures, CNAS created a Remote Instruction Work Group led by Divisional Dean Connie Nugent. This group was very active this summer, as CNAS faculty recognized that they may have been given a ‘pass’ by students for their remote teaching in Spring 2020 quarter and that the expectations for performance may be higher for Fall 2020. The Remote Instruction Work Group been actively sharing instructional tools and teaching methodologies with colleagues across campus to set an example and disseminate helpful information so that our faculty can excel at teaching online.

By April 1, CNAS began planning for potential budget impacts of the growing pandemic – it was clear that the worst was yet to come. A significant amount of planning for the long-term impacts of COVID-19 was completed by June 30; the expectation of decreased state revenue and lowered student enrolment were drivers for planning. In Spring 2020, I was asked to participate in UCR’s Budget Advisory Committee (BAC) which has held multiple town hall meetings, followed by 20 individual meetings with campus units to prepare recommendations for the Chancellor. Thus far, BAC has given

me deep insights into the organization and needs of our campus, which need to be supported by ever-decreasing funding levels from the State. CNAS is sensitive to the budgetary climate—both at UCR and the State. Working hand-in-glove with CFAO Farias, we have already reviewed and reallocated staffing resources to support CNAS' critical needs.

### **Supporting Our Natural Resources**

In 2018, responsibility for UCR's Natural Reserve System (NRS) sites (~28,000 acres) were clarified and placed under CNAS' organization (rather than directly to the Chancellor's Office). This shift allowed a more hands-on approach, which was necessary – infrastructure projects on two of the NRS sites were delayed for several years and the funding agencies were threatening to pull back funds. With the support of Chancellor Kim Wilcox, I assisted UCR with the completion of two major projects in our Natural Reserve System (Boyd Deep Canyon and Sweeney Granite Mountain sites) that were funded by Proposition 84 funds in 2012. Under my leadership, CNAS' Facilities Liaison McWilliams worked with the construction groups on campus and NRS faculty administrator Kim Hammond worked with the Reserve Directors on these off-campus projects. After many fits-and-starts, UCR successfully completed these projects in the Summer 2020.

Another natural resource on campus is UCR's Botanic Gardens, which is beloved by the Riverside campus and community-at-large. We have been making investments to improve the physical property and making great advances in philanthropy to sustain the unique operational needs of UCR's Botanic Gardens. One investment that I'm particularly proud of is the purchase of an infrared people counter. In Fall 2019, the people-counter was finally calibrated and we learned that *~8000 people per month* visit the Botanic Gardens. UCR's Botanic Gardens is the only botanic garden in the Inland Empire and a community resource that we now know logs nearly 100,000 visitors a year. While the Botanic Gardens is a significant investment of resources for CNAS, it presents an entrée into campus that should be appreciated and leveraged as a community resource.

### **Center for Cannabis Research & Regulation (C2R2)**

Work continues on this CNAS-based initiative, which began in 2016 after California voters passed Proposition 64. Under Prop 64, cannabis could be grown for non-medicinal purposes with restrictions. Working closely with campus counsel, ORED, EH&S, and UC-wide counsel, CNAS generated a questionnaire that enables UCR researchers to begin testing soil in hemp fields or facilities. We had initiated the process of attaining the DEA license to purchase hemp seeds, but with the passing of the Farm Bill last year, the license is no longer needed. With the new Plant Research 1 building, we have an appropriate on-campus location to properly and safely cultivate cannabis.

### **A Culture of Safety**

Before my arrival, the campus had experienced numerous safety issues, including a student in chemistry lab who was severely burned. In reviewing the safety practices, two items were of specific concern: i) when and how frequently students, faculty and staff are trained; and ii) identifying the protocols to prevent issues and address accidents if they happen. Starting January 2016, a dedicated safety staff person was hired who reported directly to me. The staff member was tasked to address and identify critical safety issues across CNAS – from the undergraduate students in teaching labs to machine operators on AgOps. Another key component of this staff hire was the integration of safety with facilities. For example, while discussing lab renovations for a newly hired assistant professor, the staff member would also work with both the faculty and those involved in the physical renovations to help “engineer” safety protocols into the redesign of the space. In addition, this staff member would also work with the faculty as the space was populated to help advise on lab-based safety protocols, SOPs, required trainings, etc.

## Streamline the CNAS Organization

Prior to my arrival, CNAS faculty had been discussing an extensive reorganization of several key departments as well as the CNAS Dean's office. The reorganization plan (the "CNAS Redesign") was submitted for Academic Senate feedback in August 2015, well before I joined UCR. Despite the extensive work to prepare the plan, the Senate's feedback was *not* supportive. Nonetheless, several key ideas were implemented such as renaming several departments to reflect their current and aspirational interests: Biology was renamed the Department of Evolution, Ecology, and Organismal Biology (EEOB) in 2016; Environmental Sciences was renamed the Department of Environmental and Ecosystem Sciences (E2S) in 2016; Cell Biology and Neuroscience was renamed the Department of Molecular, Cell and Systems Biology (MCSB) in 2017; Plant Pathology and Microbiology was renamed the Department of Microbiology and Plant Pathology (MPP) in 2017; and Earth Sciences was renamed the Department of Earth and Planetary Sciences in 2018.

To ensure that Departments were appropriately represented, I evaluated the Divisional Dean positions within CNAS. By July 2016, three departments were re-allocated to different Divisional Deans (**see Attachment**). This re-organization was predominantly done to balance the workload of the three academic Divisional Deans and to better align the departments' aspirations with the appropriate Divisional Dean. After reorganizing and realigning the responsibilities, I chose Divisional Deans from amongst the Departments that the Divisional Dean was to represent e.g., the Life Sciences Divisional Dean was chosen from the Life Science Departments.

## My Scholarship

My research links chemistry, life sciences and engineering to create biodegradable polymers, namely PolyActives and sugar-based amphiphiles for drug delivery, personal care and household applications. With an h-index ~55, I've authored ~180 peer-reviewed articles and generated ~\$30 million in federal and corporate funding. This work has spawned several start-up companies and generated >60 issued patents. I'm impassioned about mentoring the next generation of scientists, as reflected by the composition of my research team: ~60 graduate and ~90 undergraduate students, and ~30 visiting scientists from around the globe.

I've continued my research, albeit on a smaller scale, at UCR and publish with the 3 postdoctoral scholars, 1 PhD student and 5 undergraduate students who I've mentored at UCR since January 2016. My UCR research group has published 5 peer-reviewed journal articles and 3 book chapters. My UCR lab has received industrial support from the BASF Corporation to explore pH-sensitive enzyme encapsulation for laundry applications and from ExxonMobil to develop novel antioxidants for lubricant additives. As coPI, my UCR lab has also received funding from the National Institutes of Health on three different projects: development of PolyAspirin particles for therapeutic intervention for lung inflammatory diseases; nanotherapeutics for aggregated synuclein protein disorders in Parkinson's Disease; and preventing alpha-synuclein aggregation using nanotechnology to inhibit brain neurodegenerative plaques. Scholarship is invaluable to me, as it keeps me directly connected to the wonder of teaching and learning.

## Internal/External Goals for the Next Five Years

### CNAS Academic Plan

CNAS has not had a strategic plan in many years, likely due to brief service; I am the Dean with the longest tenure in decades. In Fall 2019, I began the process of preparing the faculty hiring component of CNAS' Academic Plan for the next five years but COVID-19 changed the timeline and the priority.

Due to the significant budget reductions for the next few years, it is unlikely that CNAS will be able to hire faculty in the same manner as over the past five years. Once UCR's Strategic Plan is complete, I will initiate CNAS' academic planning which will focus on three areas: 1) faculty hiring and success; 2) graduate student growth; and 3) undergraduate student success.

### **CNAS Academic Plan: Faculty hiring and success**

Hiring excellent faculty is fundamental to the success of CNAS. Along with the entire UCR campus, CNAS has dramatically increased the number of faculty, from ~240 in 2015 to ~330 in 2020. The majority of these faculty members were recruited to campus as part of UCR's Cluster Hiring initiative, which prioritized specific research areas. Prior to the Cluster Hiring Initiative (which began ca 2014-15), faculty hires were typically based upon replacing faculty who separated from the College. CNAS greatly benefited from the Cluster Hire Initiative, yet, research and teaching gaps remain.

Further, UCR's current budget model focuses on teaching by the Colleges, predominantly through student credit hours. Thus, as we create faculty hiring plans, we need to factor in the demands of teaching for CNAS' majors and for UCR's breadth courses. To balance the research and teaching needs, CNAS Dean's office performed another SWOT analysis with the CNAS Department Chairs and Directors in Fall 2019. Following the in-person meetings, notes were disseminated to all CNAS faculty, chairs were asked to share with their Department, and faculty input requested.

This process was initiated before the COVID-19 pandemic, which resulted in UCR ramping down our research programs and moving to remote instruction. Due to the significant financial impacts of the pandemic, UC and UCR incurred a faculty and staff hiring freeze in Summer 2020. Nonetheless, the planning results remain relevant for CNAS's future hiring plans. With the dramatic budget changes, a key aspect to the faculty hiring component of CNAS' Academic Plan is working closely with VCRED Torres and VCPB Bomotti to develop an appropriate budget model for faculty startup packages.

### **CNAS Academic Plan: Graduate Student Growth**

To build our graduate program, we need to create opportunities to increase the number of graduate students. Opportunities include: developing Professional Science Master's program; offering appropriate online/hybrid courses; creating 4+1 Master's programs, and creating self-supporting master's programs that serve as a pipeline for PhD students and offer a career pathway. In particular, self-supporting Master's programs that build upon CNAS' strengths (such as a science-based sustainability program) would further benefit our community and meet industrial needs. Self-sustaining MS programs that are sponsored by industry are a particular goal.

We also need to create opportunities to increase revenue to support our graduate students. Opportunities include: offering additional undergraduate courses to garner additional Teaching Assistant (TA) support (general education courses are particularly important); supporting graduate students on faculty grants (vs. supporting postdoctoral associates); teaching summer session (which also supports our mission of 4-year graduation times); targeting graduate student training grants; and increasing philanthropic support (e.g., focusing the next \$20M raised by CNAS towards PhD student support).

### **CNAS Academic Plan: Undergraduate Student Success**

With the budget concerns, we need to consider combining our graduate and undergraduate advising units to streamline and better share staff-related workload. A combined unit would also focus more resources on student-facing issues rather than administrative management.

COVID-19 is a time to rethink the impact of a university education for undergraduates. Over the past few years, I've been fundraising to support undergraduate research experiences. Over the next year, we may need to shift our focus onto other means to support undergraduates, particularly if undergraduate students will not be allowed in-person lab experiences in the near future.

## **Conclusion**

Reflecting on my past five years at CNAS, I am pleased at how the history – and future - of UCR resonates so deeply with my own core values. As I first-generation college student who didn't know enough to even apply for a Pell Grant, the mission of CNAS and UCR resonates through my core. As a proud product of a state university education and with my related experiences, I am keenly aware of the opportunities and challenges of a public research institution. Providing access to students from all economic levels, striving for diversity, engaging our communities, and achieving excellence are values to which I am wholly committed. Being part of an institution that values fairness, diversity, and rewards all aspects of a university – research, teaching and service – and being part of UC Riverside is extraordinary. I look forward to continuing to serve CNAS' faculty, staff and students and meet the opportunities of another 5-year term.

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## **Attachments**

- CNAS organizational chart
- CNAS Research and Instructional Space Committee charge
- CNAS Process for Appointing Endowed Chairs
- CNAS Strategic Fundraising Plan