College of Natural & Agricultural Sciences

STATE OF THE COLLEGE

Dean Kathryn E. Uhrich
February 1, 2022

State of the College

University Updates
CNAS Budget
Faculty
Grants and Awards
Enrollment
Student Success
Staff
Philanthropy
Community Outreach
Infrastructure
CNAS in 2022
Q&A

UC RIVERSIDE | College of Natural & Agricultural Sciences

UCR & COVID-19

We are all Back on Campus, In-person
(as of January 31, 2022)

Compassionate Clause for Instructors

campusreturn.ucr.edu/dashboards

UCR ACCOMPLISHMENTS

One of the nation's top 12 public universities – Forbes "America's Best Value Colleges"
No. 1 university in the U.S. for social mobility three years in a row – U.S. News & World Report
No. 2 in Entomology research in the world – Center for World University Rankings
No. 3 in Hispanic STEM graduates in the nation – National Science Foundation
No. 26 in the world in plant and animal sciences – U.S. News & World Report
No. 1 for Hispanic enrollment among selective universities – Urban Institute
No. 2 in the country for financial aid – Business Insider 2019
Top 10 colleges that pay off the most in big cities – CNBC
UCR School of Medicine ranks No. 6 in the country for diversity – U.S. News
No. 4 in the country for social mobility – Education Reform Now
Top 1 percent of universities worldwide – Center for World University Rankings
No. 26 most innovative university in the country – U.S. News
No. 28 among public universities – Washington Monthly
One of the Top 30 public institutions contributing to the public good – Washington Monthly
No. 2 in Entomology research in the world – Center for World University Rankings
One of America's best value colleges – Princeton Review
No. 16 greenest public university in the nation – Princeton Review
No. 20 among the Most Affordable Colleges in America – Best Value Schools

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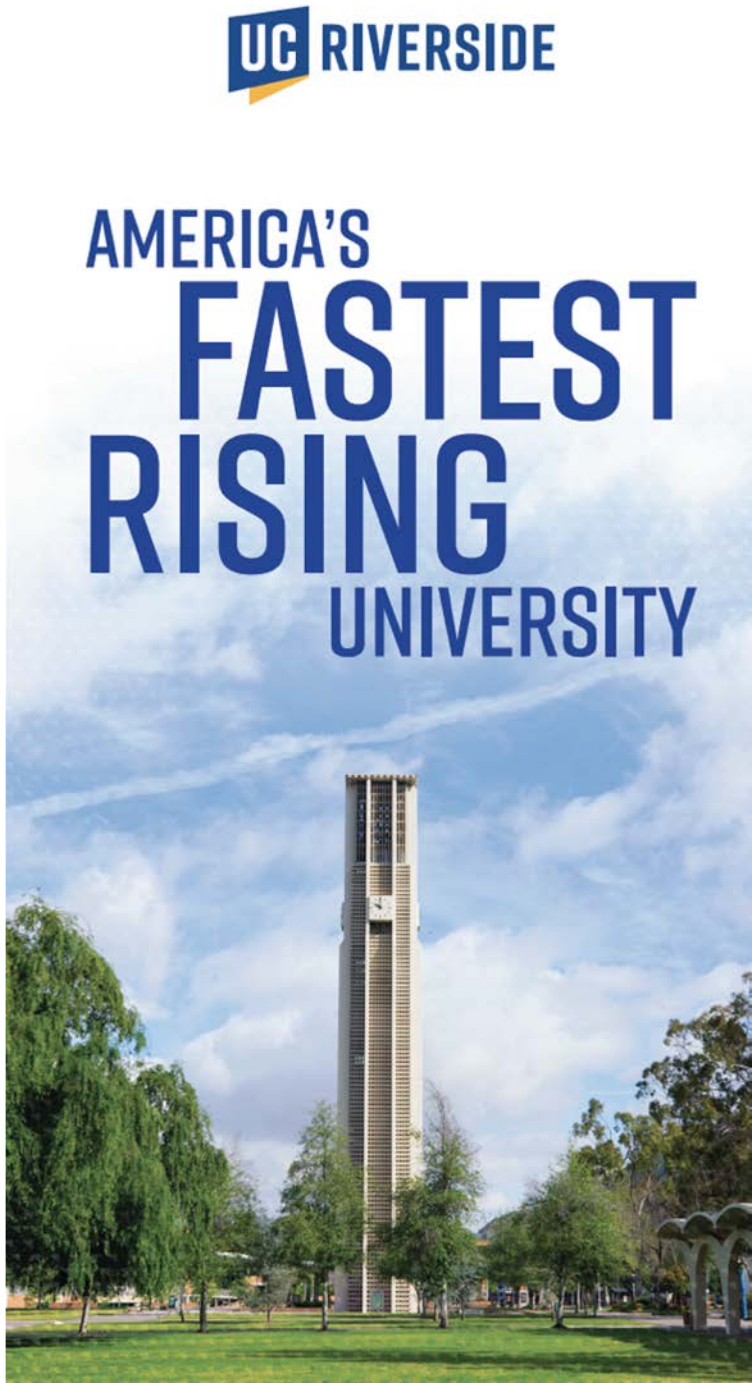

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CNAS Budget

Timeline

July 2021

Planned for $12M reduction in new fiscal year
Campus adjusted reduction to $6.6M (from $110M to $103M)

September 2021

CNAS received one-time HEERF funding $5.7M (7/1/21 - 8/31/23)

- $2.3M – Budget support
- $3.1M – Assistant Professor research support
- $174K – Student success support
- $128K – Equipment for transition to online/remote environment
- $48K – Equipment to enable distance learning

November 2021

With lower reduction than anticipated, CNAS took no reductions from departments in FY22 & restored full 10% F&A

December 2021

CNAS announced $8M available for new faculty hires in FY23
CNAS submitted proposal to UC ANR for hiring 4 CE Specialists

January 2022

CNAS prepares for FY23 budget call
Anticipates campus-wide re-benching funds $8M
CNAS estimates needs for ~30 new staff (with $3.6M permanent budget increase)

FY22 CNAS Budget Projection

College Resources

Category	Sources	Uses	Balance
Academic Commitments	7,176,856		
AES Mission Funding	1,632,992	(1,632,992)	
Academic Incentives		(1,350,000)	
HEERF Asst Profs GSR/Research Support	3,055,000	(3,055,000)	
Multistate/Hatch/CE Allocations		(533,347)	
Research Support		(1,300,000)	
Retentions		(1,300,000)	
Total Academic Commitments	**11,864,848**	**(9,171,339)**	**2,693,509**
F&A Return	4,858,693		
Facilities		(100,000)	
Start Up	2,628,500	(9,000,000)	
Hiring of New Staff Sal (6 mos est)		(300,000)	
Other	3,128,758	(1,400,000)	
Total Misc	**10,615,951**	**(10,800,000)**	**(184,049)**
Benefits	**22,675,508**	**(22,304,604)**	**370,904**
TA & Temp Teaching	12,432,866	(17,113,820)	(4,680,954)
GSR	842,774	(581,264)	261,510
Total Temp Teaching	**13,275,640**	**(17,695,084)**	**(4,419,444)**
Budget Reduction		(3,710,943)	(3,710,943)
Overall Total	**58,431,947**	**(63,681,970)**	**(5,250,023)**
Future Commitments			
CFD	43,380,731		
Future Start Up Owed		(18,794,712)	
Future Retentions and Other Commitments		(10,978,629)	
Future Commitments Total	**43,380,731**	**(29,773,341)**	**13,607,390**
NET BALANCE			**8,357,367**

Carryforward Explanation:

- Drawdown $16.5M Start Up Match Funds entire amount owed given campus uncertainty
- Start Up Match for those who separated in the first 6 years does not have to be repaid (approximately $2M)
- Prepared for $11M budget reduction but reduced to $5.7M
- Received $2M in HEERF funds for to support budget reduction in FY22

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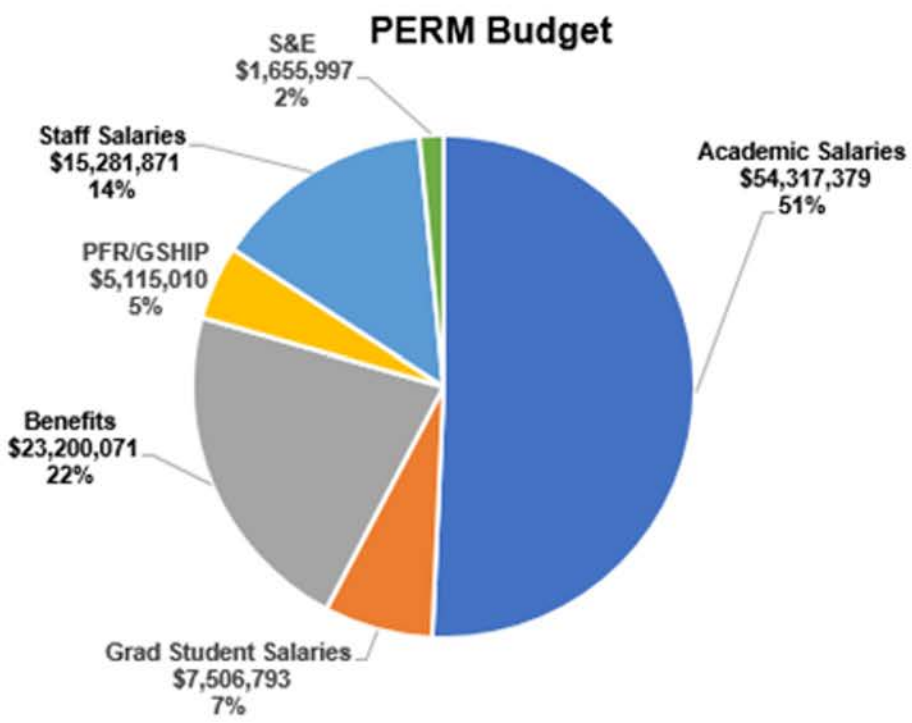
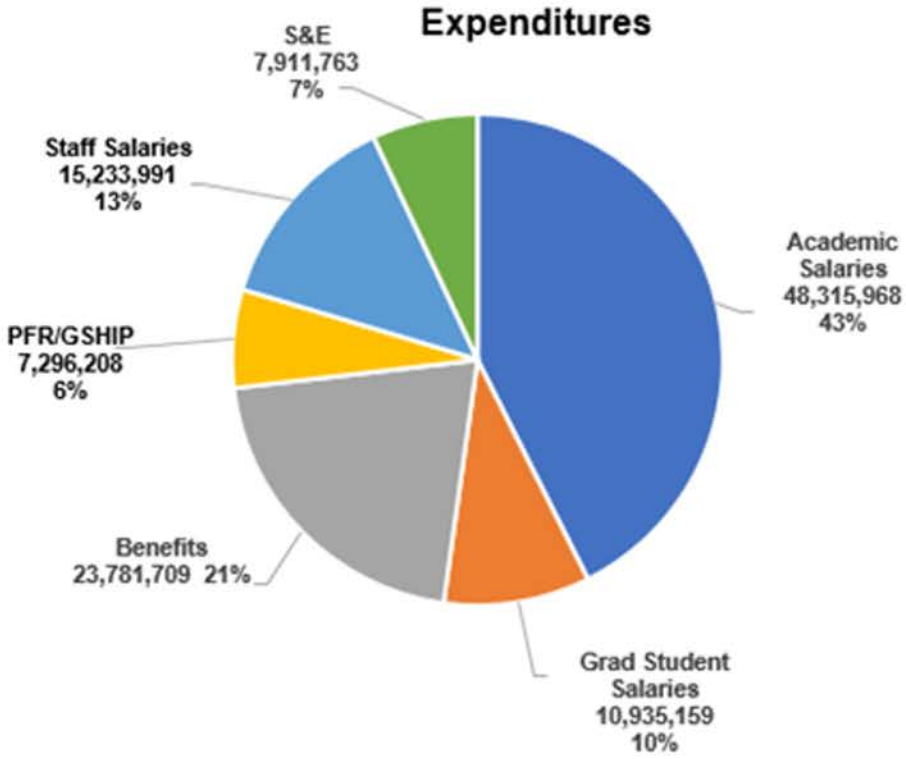
CNAS Budget

General Funds by Category FY21 Actuals



$107,077,121

($103M + fixed cost increases)



$113,474,797

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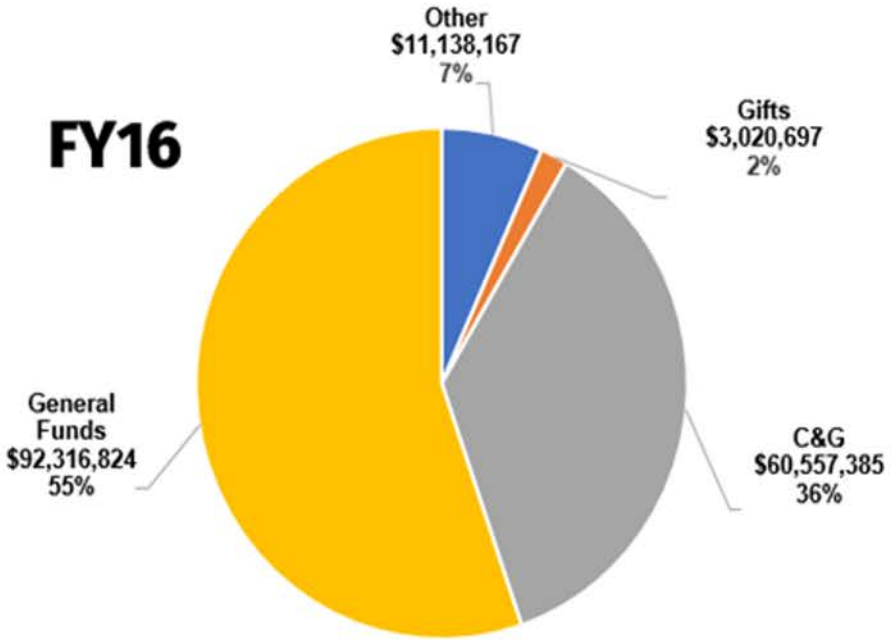
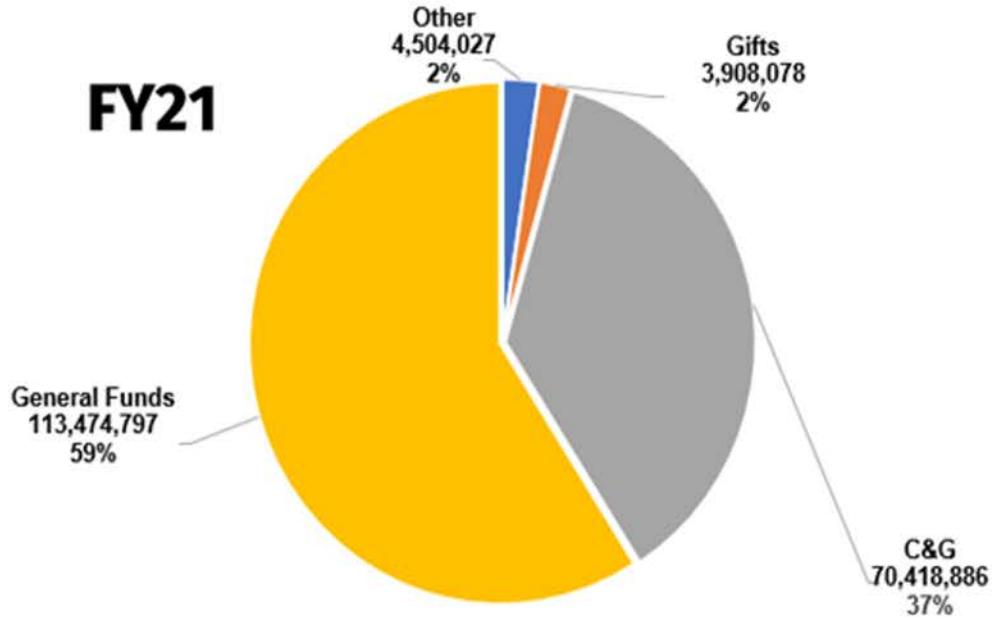
CNAS Budget

Actual Expenditures by Fund Group FY16 & FY21 Comparison



$167,033,074



$192,305,788

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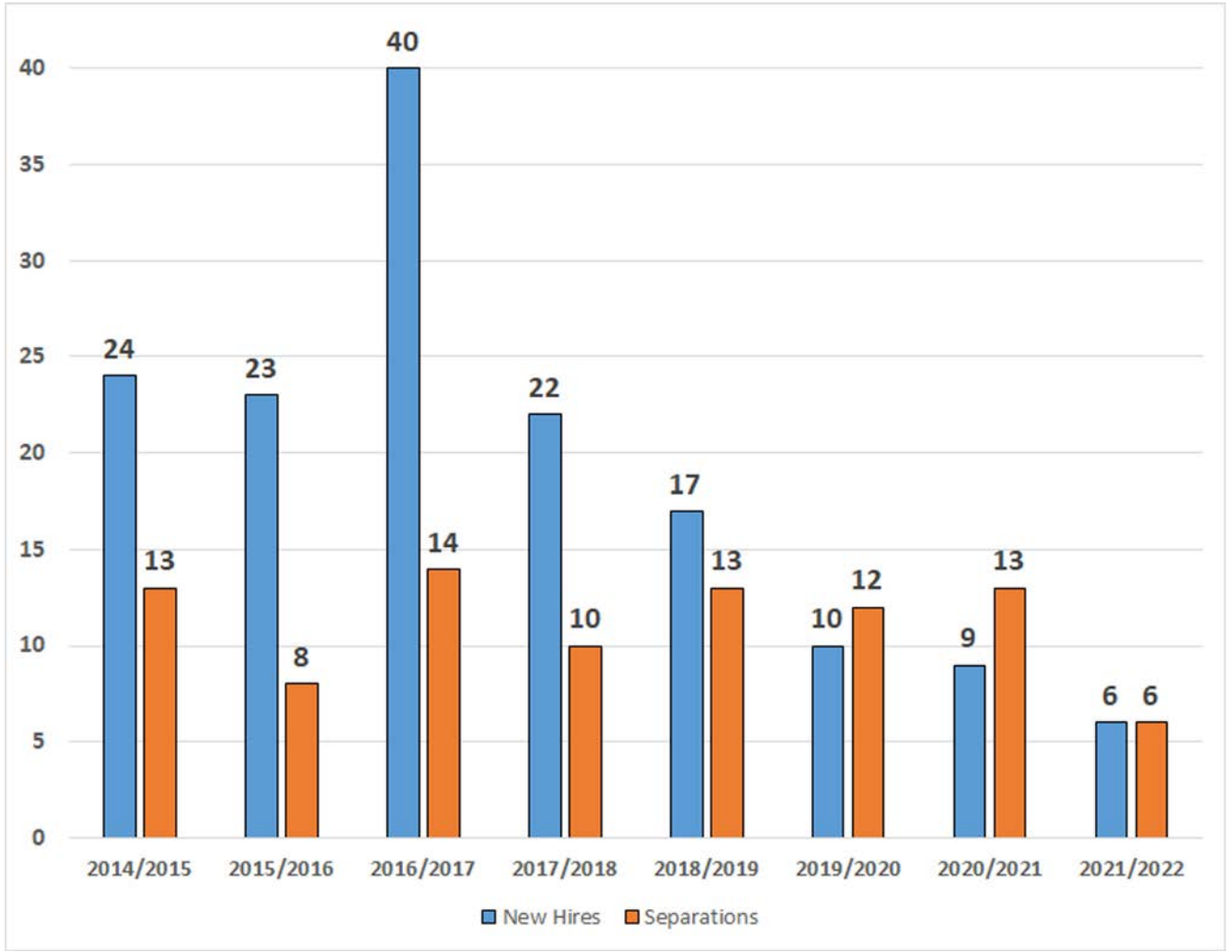
CNAS Vision

Elevate CNAS Status

- ***Enhance Faculty Visibility***
- Improve Student Experience
- Embrace Community

Faculty

Start Dates vs Separation Dates FY21 (as of February 1, 2022)



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Faculty Hiring

July 2022 Start Date

Prioritized Teaching Needs	Retention Hires
Biochemistry (+PoT)	Botany & Plant Sciences
Chemistry (+PoT)	Micro Plant Path
Entomology	Physics & Astronomy
Env Sciences	
EEOB (+PoT)	
Math	
Statistics	

Faculty Hiring

ANR

Prioritized Professors of CE Requests from CNAS

- Botany & Plant Sciences
- Entomology
- Environmental Sciences
- MPP

Additional UCR requests

- SPP and BCOE

Expect feedback/affirmation from UC ANR in March

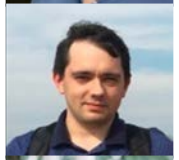
New CNAS Faculty

Lucy Delaney
Assistant Professor of Teaching in the Department of Evolution, Ecology, and Organismal Biology

Simon C. “Niels” Groen
Assistant Professor of Evolutionary Systems Biology in the Department of Nematology

Maria Ninova
Assistant Professor in the Department of Biochemistry

Kate Ostevik
Assistant Professor in the Department of Evolution, Ecology, and Organismal Biology



Mykhailo Potomkin
Assistant Professor in the Department of Mathematics

Jonathan Richardson
Assistant Professor in the Department of Physics & Astronomy

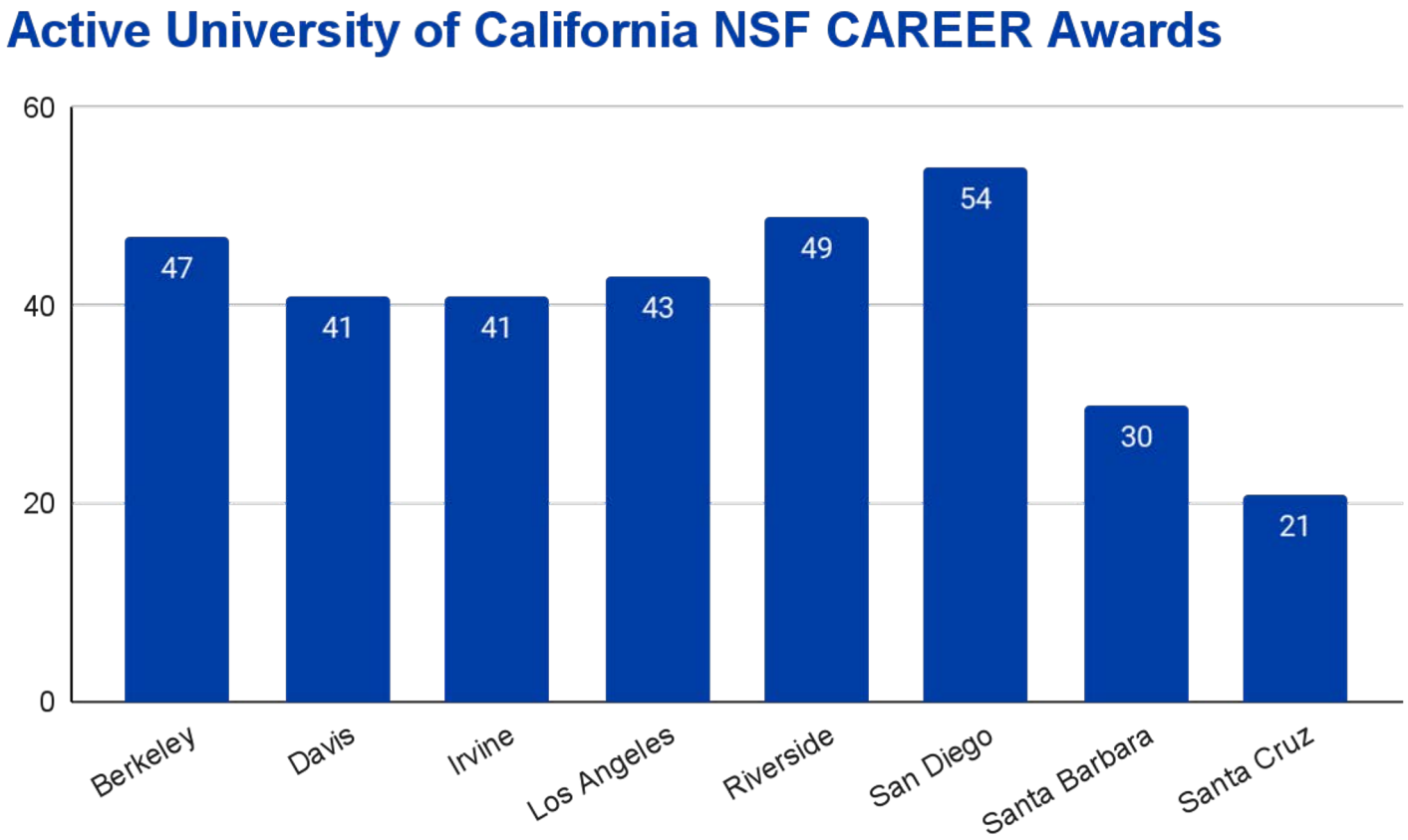
Kieran Samuk
Assistant Professor of Biology in the Department of Evolution, Ecology, and Organismal Biology

UC NSF CAREER Awards (2021)

Ladder Rank Faculty at UCR
(04/2021 Headcount) = 837 (5.9%)

Ladder Rank Faculty at UCB
(04/2021 Headcount) = 1,359 (3.5%)

Ladder Rank Faculty at UCSD
(04/2021 Headcount) = 1,133 (4.8%)



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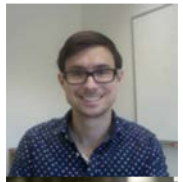
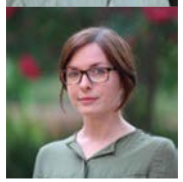
CNAS NSF CAREER Awards

In 2020, 12 proposals were submitted; 5 were awarded
In 2021, 12 proposals were submitted, announcements expected soon





Anson D'Aloisio (Physics and Astronomy) During the Epoch of Reionization, the first galaxies formed and the hydrogen gas between them was ionized. D'Aloisio will develop software to simulate this epoch to better understand star formation in the earliest galaxies. The project will also enlist undergraduate students and build a radio telescope for astronomy education and outreach.

Daniel Koenig (Botany and Plant Sciences) Koenig's project will study how barley, one of the world's staple foods, might survive climate change. His work will reveal details about genetic adaptations barley has made in the past to enable its survival over thousands of years. These details will also help steer its future as weather becomes more extreme.

Flip Tanedo (Physics and Astronomy) The properties of dark matter remain a tantalizing mystery; discovering the masses and interactions of the dark matter particles would illuminate the cosmological history of the known universe. Tanedo will lead an ambitious research program to develop new theories of dark matter that can explain why it has eluded our laboratory tests and show how upcoming experiments may reveal its properties.

Peng Wei (Physics and Astronomy) Wei's project will improve quantum computing by utilizing a kind of exotic quantum particles, known as Majorana fermions, that are indistinguishable from their antiparticles. This unique property allows construction of the basic element of quantum computing, a quantum bit or qubit, using a pair of coupled Majorana fermions, which can produce a new type of qubit that is naturally protected from decoherence.

Hollis Woodard (Entomology) Bumblebee queens start off as solitary insects, looking for a place to nest. After finding a spot, the queen lays eggs and collects food to feed the brood. This continues until the first group of workers hatch and take over the queen's food gathering and feeding duties. Woodard's group will do experiments to find out whether there are genes that regulate key moments in the life of queens as they find their nests.

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Faculty Honors and Awards

For transforming our understanding of the earliest animals on Earth, UC Riverside Professor **Mary Droser** has won the **National Academy of Sciences' prestigious Charles Doolittle Walcott Medal**. The medal, part of the academy's Award in Early Earth and Life Sciences, is an honor bestowed on only one scientist in the world every eight years. It is presented with a $10,000 prize. Droser is a paleoecologist who studies the unfolding of complex life. For more than 20 years, she has been uncovering fossils in the Australian Outback. She and her students travel there annually to discover strange, ancient animals previously unknown to science.

The **Japan Academy Medal,** widely considered the most prestigious award for young Japanese researchers, only goes to six recipients annually. This year associate entomology professor **Naoki Yamanaka** has been elected for the honor. Chosen among nominees from all fields of sciences and humanities, Yamanaka was recognized for research into the way that steroid hormones control insect growth and development.

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Faculty Honors and Awards

Three CNAS professors have been elected 2021 Fellows of the American Association for the Advancement of Science (AAAS)

De-en Jiang is a chemistry professor who has made significant contributions to the field of computational chemistry, with applications for energy and the environment. He is being honored “for work in electric energy storage, especially in supercapacitors, as well as catalysis, and separation processes, including carbon capture.”

Jing Shi, a distinguished professor of physics and astronomy, has been named “for his outstanding contributions to the synthesis and study of magnetic and non-magnetic hybrid material systems for spintronics and to the understanding of novel spin transport properties in these systems.”

Kathryn Uhrich is dean of UC Riverside’s College of Natural and Agricultural Sciences, a professor in the Department of Chemistry, and a participating faculty member in the Department of Materials Science and Engineering. She was nominated for her contributions to the field of biodegradable polymers “that serve a critical need in therapeutics/drug delivery and service to the chemistry community.”

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Highly Cited Researchers List (2021 Clarivate Analytics)

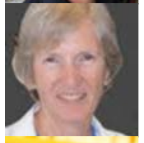
6 out of 8 UCR researchers are from CNAS

Julia Bailey-Serres, University of California MacArthur Foundation Chair and distinguished professor of genetics (plant and animal science category)

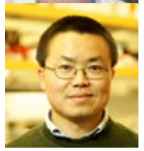
Sean Cutler, distinguished professor of plant cell biology (plant and animal science category)

Pingyun Feng, professor of chemistry (cross-field category)

Timothy Lyons, distinguished professor of biogeochemistry (geosciences category)



Prue Talbot, professor of cell biology (social sciences category)



Yadong Yin, professor of chemistry (cross-field category)

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CNAS in the Media

National headlines featuring CNAS faculty and research

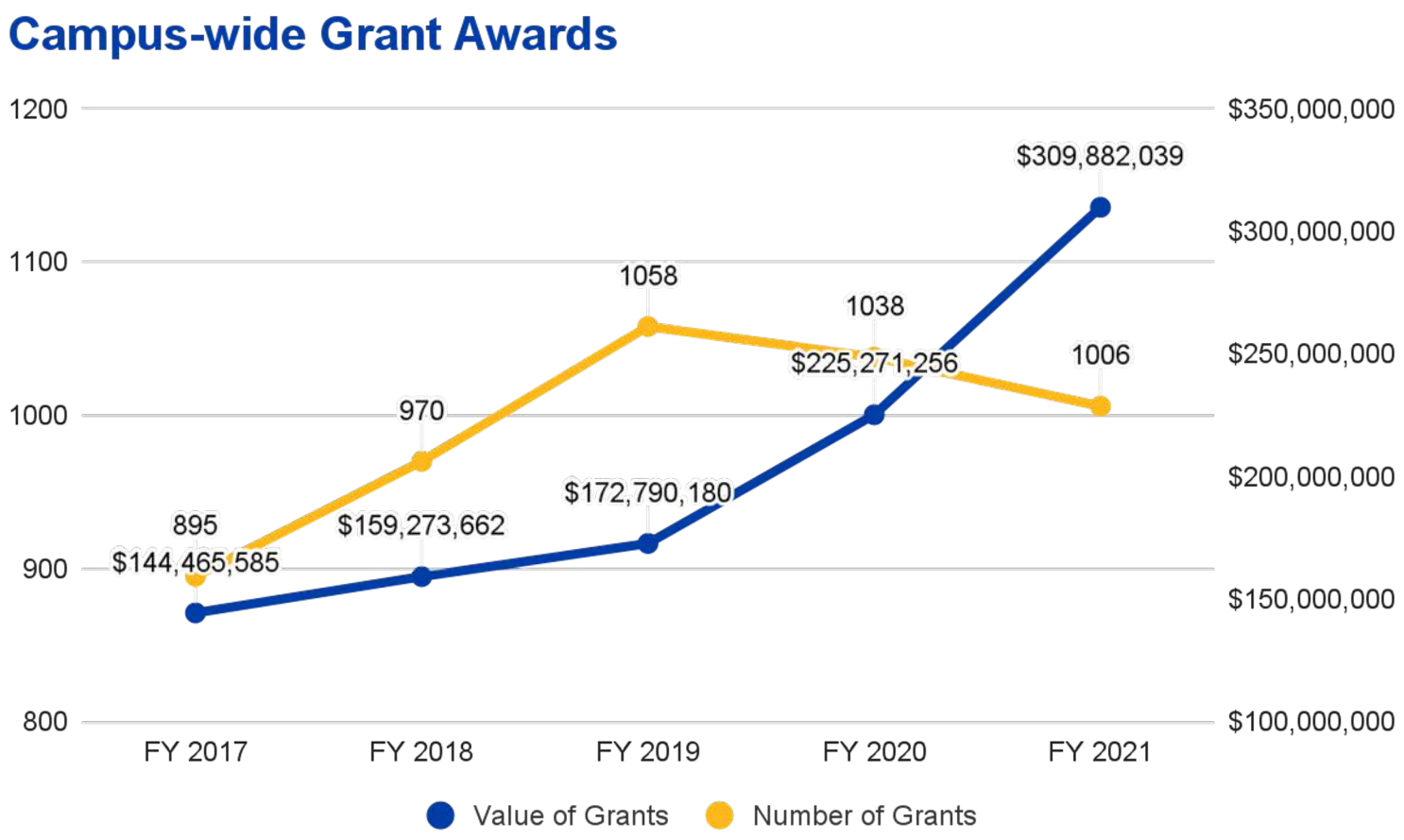
Scientists say they might have discovered the cause of **Alzheimer's** ~ *The Hill*

Can lithium cure what ails the **Salton Sea**?
~ *Los Angeles TImes*

COVID-19 Vaccine Makers Are Looking Beyond the Spike Protein ~ *The Atlantic*

Stuck in traffic? Americans with longer commutes could be inhaling dangerously high levels of **carcinogens**, study says ~ *USA Today*

Grant Awards



FY21 CNAS GRANT AWARDS

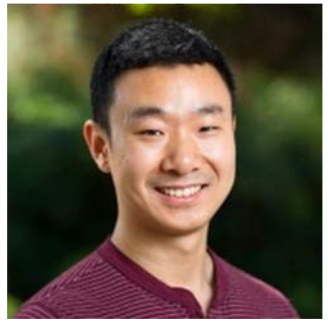
CNAS PIs submitted ~700 grant proposals, awarded ~550 grants, and received ~$90M in grant funds

Research Grants

Highlighting CNAS Research Grants

Julia Bailey-Serres (Botany and Plant Sciences)
Title: RESEARCH-PGR - Adapting Crops to a Harsh Environment: Interplay between Arbuscular Mycorrhizal Fungi, Drought Stress and Plasticity of Plant Architect
Total Award Amount: $3,100,000
Agency: NSF

Georgios Vidalakis (Microbiology and Plant Pathology)
Title: The California Citrus Clean Plant Network
Total Award Amount: $1,066,280
Agency: National Clean Plant Network (NCPN)



Min Xue (Chemistry)
Title: Multicyclic peptide-based protein-protein interaction modulators for inhibiting oncogenic MYC activities
Total Award Amount: $1,203,809
Agency: Department of Defense (DoD)

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CNAS Vision

Elevate CNAS Status

- Enhance Faculty Visibility
- ***Improve Student Experience***
- Embrace Community

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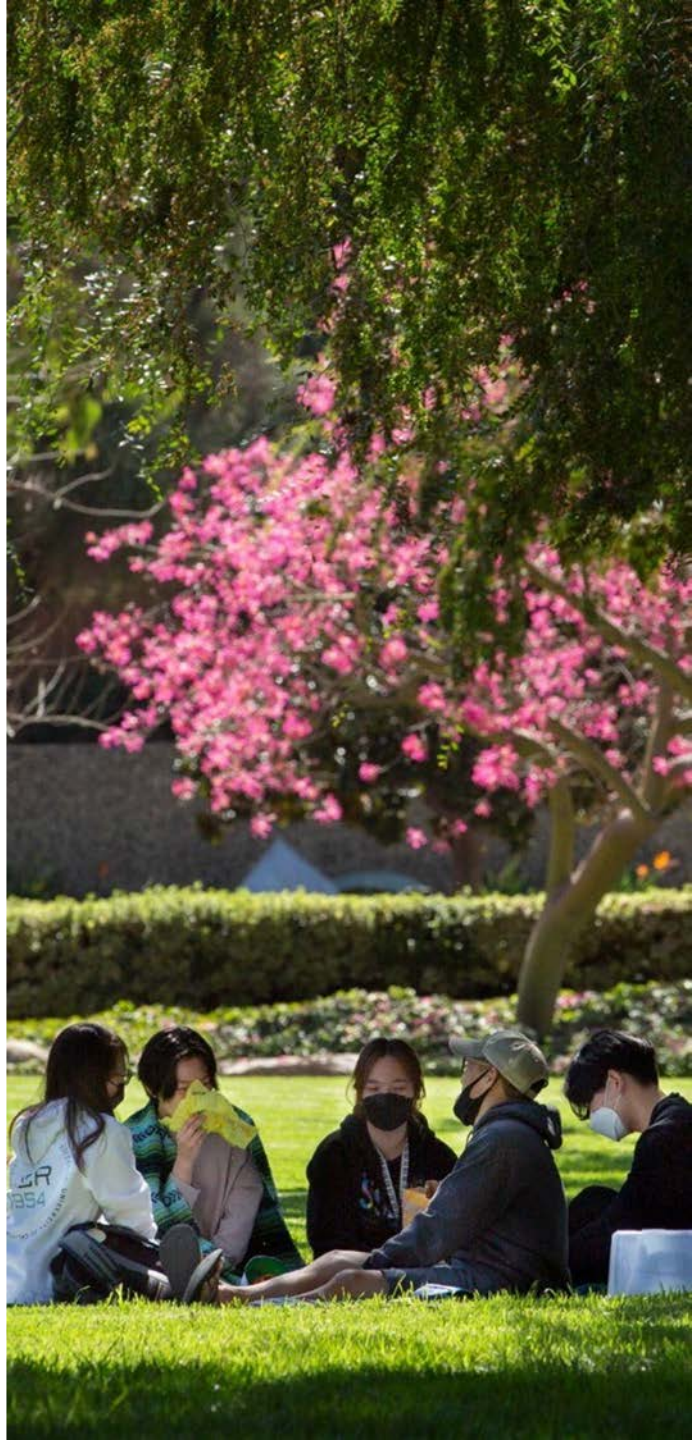
UCR: Fall 2021 Enrollment

Fall 2021, UCR welcomed 8,582 total new students

- 7,259 new undergraduates
  - 4,993 new resident first year students
  - 1,935 new transfer students
- 1,323 new graduate students

Total Enrollment at UCR

- 26,847 students
- 1.5% increase from last year



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CNAS: Fall 2021 Enrollment

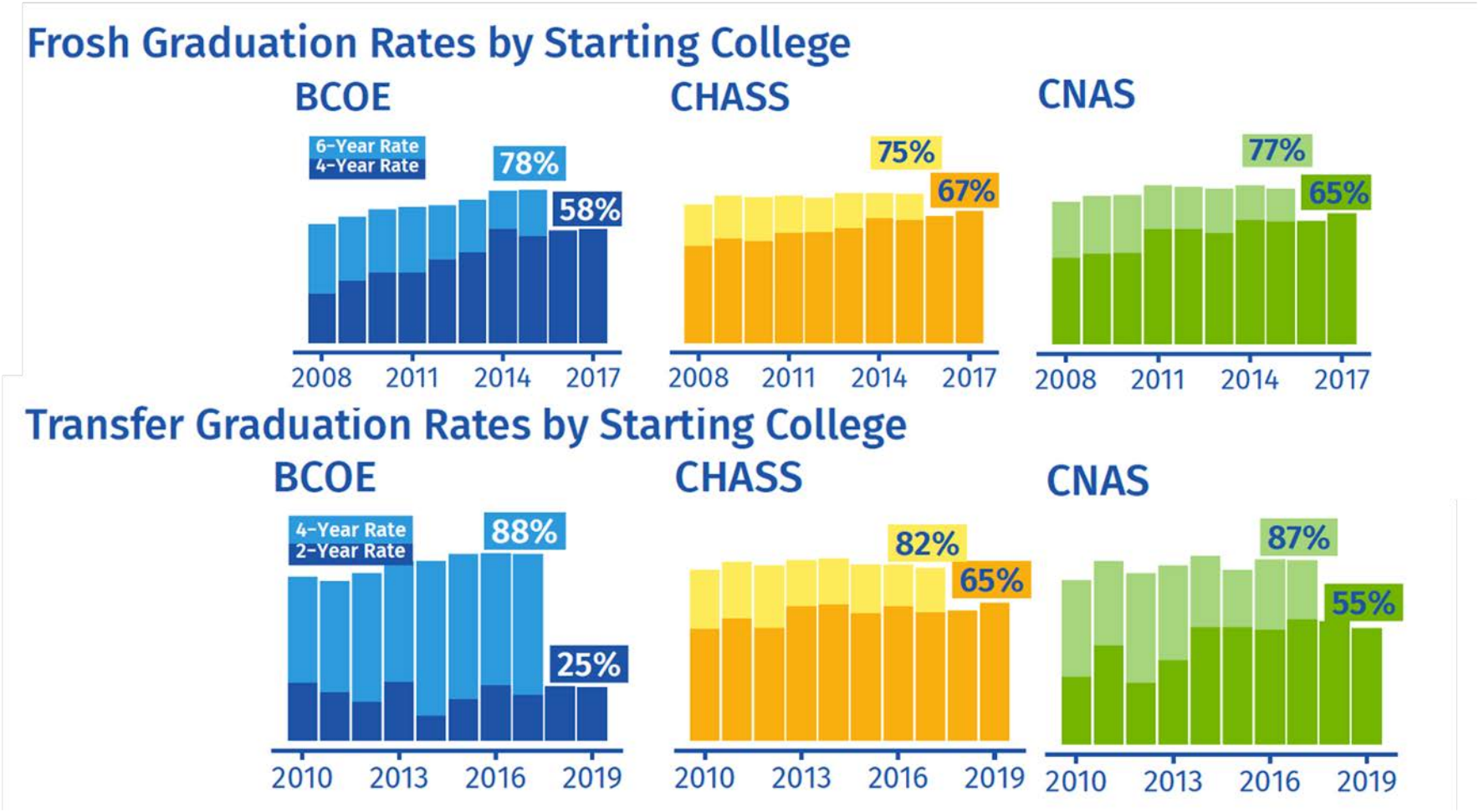
Fall 2021, CNAS welcomed 7,681 total students

- 858 Ph.D. students
- 89 M.S./M.A students
- 6,734 undergraduate students
  - 975 are transfer students

New CNAS students

- 1,747 first-year students
- 387 transfer students
- 132 Ph.D. graduate students
- 38 M.S. graduate students

UCR: Student Graduation Rates



Undergraduate Student Awards

The Barry M. Goldwater Scholarship is one of the country's most competitive honors in the science, technology, engineering, and mathematics fields, or STEM.

Shayan Saeed: He starts as a fourth year Middle East and Islamic studies student this fall. For the past two years he has been conducting research in the lab of Manuela Martins-Green lab in the Department of Molecular, Cell and Systems Biology.

Saeed's current research interests are in chronic wound healing. His project seeks to find potential therapies that may resolve wound chronicity, meaning a wound's inability to heal in a timely manner. Shayan also received a summer fellowship from the Wound Healing Foundation.

Saeed wants to pursue a career as a physician scientist. His Middle East and Islamic studies major will support his career as he plans to "educate others about the beauty of the religion of Islam and the Middle East to hopefully break barriers and remove stereotypes."

Ryan Gates: Gates will be starting his third year in the fall. The biochemistry major conducts research with Ernest Martinez in the Department of Biochemistry. Gates wants to discover a new drug target to help patients suffering from breast cancer.

After completing his undergraduate degree, Gates will apply to a doctoral program focusing on translational cancer research.

"Upon completing my program of study, I aim to start a biotech company with an emphasis on developing early-stage cancer detection methods and treatment options," Gates said.

NSF Graduate Research Fellowship Program (GRFP)

The NSF GRFP recognizes and supports outstanding graduate students in NSF-supported STEM disciplines who are pursuing research-based master's and doctoral degrees at accredited US institutions. The five-year fellowship includes three years of financial support including an annual stipend of $34,000 and a cost of education allowance of $12,000 to the institution.

NSF GRFP awarded 2021-2022

Hannah Chu	Entomology
Jolene Antonette Saldivar	Plant Biology

Honorable Mention 2021-2022

Taylor Beaulieu	Plant Biology
Isaac Diaz	Plant Biology
Christopher Kent Jones	Earth & Planetary Sciences
Michaela Leung	Geological Sciences
Elizah Zoe Stephens	Environmental Sciences

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Graduate Student Training Grants

Title: TRANSCEND - Training Program to Advance Interdisciplinary Stem Cell Research, Education, and Workforce Diversity
PI: Prue Talbot, Co-PIs: Martin Garcia-Castro (SoM), Huinan Liu (BCOE)
Total Award Amount: $4,993,115
Agency: CIRM

Title: Research Training in Environmental Toxicology
PI: Yinsheng Wang, Co-PIs: David Volz, Wenwan Zhong
Total Award Amount: $5,073,761
Agency: NIH

GAANN Grants

U.S. Department of Education Graduate Assistance in Areas of National Need (GAANN) Grants

Title: GAANN Fellows in Entomology
PI: Rick Redak, Co-PIs: Christiane Weirauch, Erin Rankin

Title: GAANN Fellowships in Microbiology and Plant Pathology
PI: Emma Aronson, Co-PIs: James Ng, Kathy Borkovich, Caroline Roper

Title: GAANN Fellowships in Neuroscience
PI: Khaleek Abdul Razak, Co-PI: Michael Adams

Title: SustainLife - GAANN Fellows in Ecology, Evolution, Organismal Biology at U.C. Riverside
PI: David Reznick, Co-PIs: Kurt Anderson, Christopher Clark

Title: Training a New Generation of Plant Biologists for the Future of Agriculture and Ecosystem Sustainability
PI: Thomas Eulgem, Co-PIs: Janet Franklin, Patricia Springer

Title: GAANN Fellowships in Biochemistry and Molecular Biology
PI: Jingsong Zhang, Co-PIs: Jikui Song, Ernest Martinez, Sean O'Leary

CNAS Vision

Elevate CNAS Status

- Enhance Faculty Visibility
- Improve Student Experience
- ***Embrace Community***

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Staff

2021 UCR Staff Assembly Awards

The Get Recognized Peer Recognition Program recognizes full-time, career staff members who have gone above and beyond in their jobs. Individuals are nominated by their peers and selected by the Staff Assembly Recognition Committee. Submit nominations at staffassembly.ucr.edu.

Staff Assembly Get Recognized Award (November 2021)
Denise Correll - CNAS Undergraduate Academic Advising Center

Staff Assembly Get Recognized Award (November 2021)
Javier Ramirez - CNAS Undergraduate Academic Advising Center

UC RIVERSIDE College of Natural & Agricultural Sciences

Staff

CNAS estimates needs for ~30 new staff (with $3.6M permanent budget increase expected for FY23)

Hiring challenges due to “great resignation”

Rethinking the “future of work” with input from students, faculty, staff, CNAS staff advisory committee, and others

Continued COVID impacts

With rapid growth in CNAS funding, CNAS needs additional staff to support faculty productivity

Continue Dean’s Office Hours with Staff; next office hours on Friday, February 11

UC RIVERSIDE | College of Natural & Agricultural Sciences

Philanthropy

CNAS Fundraising Updates (July 2021- January 2022)

Beyond Brilliant is UC Riverside's first fundraising initiative dedicated to student-focused priorities across the university. UC Riverside seeks to raise $50 million over the next five years to build resources that support every aspect of the student experience at UCR, including expanding need and merit-based scholarships and fellowships, experiential learning, and health and well-being.

Campus-wide Beyond Brilliant progress to date:
$35.2M, 70% to goal

CNAS Beyond Brilliant progress to date:
$6M, of a $13M goal, with 4 years remaining

CNAS Overall Fundraising to date:
$4,764,162 (43% increase over last year)

Philanthropy

John and Elizabeth Leonard Family Foundation

The Leonard Family Foundation has, as one of its primary missions, the promotion of education in mathematics and the sciences so that students may succeed in a technologically complex world.

The Leonard Family Foundation generated $1.2M in endowed fellowship funding for CNAS Ph.D. students.

The Leonard Family Foundation also supports the 10-week CNAS Research in Science and Engineering (RISE) Summer Program.

Philanthropy

Natural Reserve Inclusivity Internship

With the leadership of **Kim Hammond** and **Heather Constable**, the UCR NRS received a generous donation to start the **Natural Reserve Inclusivity Internship** for students to gain experience on UCR's natural reserves. This program exposes students to the natural world and to careers involving conservation, particularly targeting undergraduate students.

Through generous donations of supporters, the Natural Reserve Inclusivity Internship offers a rich 10-week long, immersive summer research internship under the guidance of experienced faculty members from all over the UC system. In Summer 2021, the Natural Reserve Inclusivity Internship launched its inaugural summer internship program with great success.





CNAS Scholarships/AcademicWorks

Academic Year	2018-2019	2019-2020	2020-2021	2021-2022
Total Scholarships Listed	15	18	21	23
Number of Applicants	142	1,060	1,409	1,638
Number of Students Awards	20	19	46	34
Amount Awarded	$45,725	$108,989	$133,677	$135,376

Overall: 20 undergraduate awards and 14 graduate awards
Amount Awarded: $59,926 for undergraduates and $75,450 for graduate students

Community Outreach

CNAS Science Ambassadors

Science Ambassadors Projects: The goals of each program include increasing college enrollment in STEM fields among Riverside-area high school students, particularly those from underrepresented, low-income, and/or first generation backgrounds.

- **Delta SiFy** - coaching Science Olympiad with middle school and high school students at the Stem Academy.
- **Little Einsteins** - engages elementary school students with interactive hands-on science lessons.
- **SISTERS** - mentors 7th and 8th grade girls from RUSD through mentoring, activities, and networking.
- **SMASH** - tutors high school AVID students at Ramona HS, organize Q&A panels on colleges.

Pandemic Challenges:

- Transitioning hands on science lesson modules to a virtual and interactive setting
- Little Einsteins ice cream experiment — challenges of accessibility of materials/ingredients and being cost sensitive

Community Outreach

Entomology & the City of Riverside's Annual Insect Fair

Riverside Insect Fair activities include: Storytime Fun with the Library, explore a **Day in My Life with UCR Entomology Graduate Students**, learning how to create your own bug collection, shopping and much more!

Entomology is looking for volunteers to assist in putting together pre-recorded videos and/or participating with the in-person event. If you have questions or would like to volunteer, contact Mari West (mwest008@ucr.edu).

Community Outreach

The James Webb Space Telescope

The James Webb Space Telescope, the most complex and expensive space laboratory ever created, just reached its ultimate destination a million miles from Earth. The telescope will send information about parts of space and time never seen before. It will also send previously unattainable information about parts of our own solar system.

Dr. Stephen Kane's lab will be using the telescope to look for planets like Venus in other parts of the galaxy. In addition to work with the Webb mission, Dr. Kane is also joining NASA on missions to Venus expected to launch after 2028.

Community Outreach

The Salton Sea

UCR's **Salton Sea Task Force**, a multidisciplinary team of researchers from CNAS, the School of Medicine and the School of Public Policy led by Distinguished Professor Emerita **Marilyn Fogel,** is tacking a myriad of critical issues surrounding the endangered Salton Sea. Currently drying up at a accelerating rate, the shrinking Sea is **affecting the livelihoods of local residents**, the ecology of its birds and fish, and the **air quality of local communities** in the Imperial and Coachella Valleys. In particular, toxic airborne dust from the increasingly exposed playa sediments may be contributing to **elevated asthma rates in children and the elderly**. Developing a better understanding of the chemistry and ecology of the Sea's water and sediments, its hydrology and air circulation patterns, and the epidemiology of asthma in the region is essential if successful strategies to mitigate these serious environmental challenges are to be found. There is also a promising potential for lithium extraction from deep geothermal brines beneath the Salton Sea to provide a **new tax revenue stream** and **expanded jobs** opportunities for the impoverished county and its communities, possibly helping to fund future mitigation strategies for the dying Sea. **www.saltonseataskforce.ucr.edu**

Science Lecture Series

Topic: Big Data Science
When: Every Tuesday Evening in April 2022
sciencelectureseries.ucr.edu

Mark Alber
Distinguished Professor of Mathematics
Director of the Interdisciplinary Center for Quantitative Modeling in Biology

Thomas Girke
Professor of Bioinformatics
Director of High-Performance Computing Center (HPCC)
Botany and Plant Sciences

Francesca Hopkins
Assistant Professor of Climate Change & Sustainability
Environmental Sciences

Stephen Kane
Professor of Planetary Astrophysics
Earth and Planetary Sciences

Infrastructure

Campus Projects

Batchelor Hall Renewal Project
Planning stages for the Bachelor Hall renovation is moving forward

Pierce Hall
Renovations Completed

Infrastructure

CNAS Projects

Plant Research 1

The state-of-the-art greenhouse facility was completed in 2021

CNAS in 2022

CNAS Academic Plan

Graduate Student Support
Assess TA allocation history
Fellowships via philanthropy

DEI Initiatives across CNAS

STEM and Sustainability


THANK YOU!
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QUESTIONS?

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