

OFFICE OF RESEARCH AND SPONSORED PROJECTS

ANNUAL REPORT
2018-2019



CALIFORNIA STATE UNIVERSITY
FULLERTON



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What We Do

The Office of Research and Sponsored Projects (ORSP) staff assist with proposal development and submission to external funding agencies, provide post award support from award notice to close-out, and assure that research and sponsored projects at California State University, Fullerton (CSUF) are conducted with the highest ethical and regulatory standards. ORSP supports scholarship on campus through faculty intramural grant award programs and campus-wide student research initiatives and competitions.



A Message from the Provost

Friends and colleagues,

It is my pleasure to invite you to read the Office of Research and Sponsored Projects (ORSP) Annual Report. The report highlights the accomplishments of our faculty, students, and institution with a particular focus on research, scholarship and creative activities.

Supporting our faculty and enhancing their professional lives is always a top priority for the University. That is why the 2018-2023 strategic plan goals incorporate diversification and growth opportunities to promote faculty research, scholarship and creative activities as well as providing support services. With highly qualified and dedicated staff, our ORSP provides support for faculty-student research, scholarship and creative activities as well as extramural grant development, submission, and administration. I am grateful for their commitment and hard work.

I am also very proud of and impressed with the scholarly and creative accomplishments of our faculty members and their student-mentees. The University's faculty-student research was showcased in national and international conferences and in peer-reviewed publications. It is an excellent example of how our faculty members, in all disciplines, are committed to student success.

In closing, I want to thank our faculty members for their dedication to providing a balanced curricular and co-curricular experience to our students through outstanding teaching, research, scholarship and creative activities. You truly inspire our students.

PAMELLA H. OLIVER, PH.D.

Provost and Vice President for Academic Affairs

ORSP Associate Vice President's Message



2018-2019 was a productive year for scholarship at Cal State Fullerton! As reported by Web of Science™, CSUF faculty and staff published 590 scholarly articles in 2018, one of the highest among the CSU campuses. Under the mentorship of 35 faculty members, over 100 CSUF student scholars, disseminated their research and creative activity results through 55 different posters/oral presentations at the 2018 Southern California Conference on Undergraduate Research in Pasadena, California.

In FY 2018-19, our world-class faculty scholars and staff submitted 253 extramural funding proposals for a total of over \$56.1M. Through their high-quality proposals, our faculty and staff were awarded 79 new and supplemental awards in FY 2018-19, for a total of \$28.7M in funding intended to advance knowledge, support students and further technological innovation. In addition, CSUF recorded a high of \$27.4M in extramural funds on 135 new and active sponsored projects. Moreover, ORSP provided \$608,000 as seed funding to 87 projects to promote faculty-student research and pursue extramural funding opportunities. Our Office of Research Compliance and pertinent committees also reviewed and approved 711 Institutional Review Board (IRB) and 37 Institutional Animal Care and Use Committee (IACUC) protocols for curricular, co-curricular, and sponsored research projects.

Presented in this annual report are the CSUF ORSP activities during 2018-19 and some selected faculty-student research highlights. I am looking forward to more faculty-student research success in 2019-20. As the AVP for Research and Sponsored Projects, I extend my thanks to CSU and CSUF administrators, faculty, staff, funding agencies, students and CSUF friends and family for their unconditional support. I look forward to your continuous support of the ORSP mission to serve our communities locally, nationally and globally through innovation, discovery, and transformative research. Please visit our webpage - www.fullerton.edu/doresearch/ for more detailed information about the research enterprise.

A handwritten signature in black ink that reads "Binod Tiwari". The signature is fluid and cursive, with a horizontal line underneath the name.

BINOD TIWARI, PH.D., P.E.

Associate Vice President



Our Mission

The Office of Research and Sponsored Projects (ORSP) works with other units throughout the campus to seek external support for faculty research, creative activity, and institutional projects that support the educational and service mission of the university. Collaboration is sought across disciplines, departments, and community partners in preparing proposals to federal, state, and private agencies.

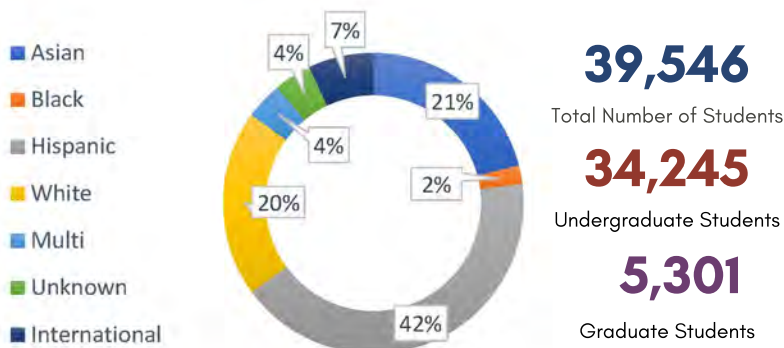
Strategic Plan

Related CSUF Goals	Related CSUF Strategy	ORSP Strategy
1. Provide a transformative educational experience and environment for all students.	1.3 Scale and institutionalize culturally responsive curricular/cocurricular High Impact Practices (HIPs).	1.1 Support the development and expansion of High Impact Practices (HIPs) with the focus of strengthening faculty professional development in research, scholarship and creative activities.
		1.2 Conduct an inventory of undergraduate research or other faculty-student mentoring opportunities and develop a model to consistently promote this experience across majors.
	1.8 Increase on-campus student employment, internships, and professional development opportunities.	1.3 Explore and pursue funding opportunities that encourage and support student employment, internships and professional development.
	1.9 Expand faculty-student mentoring opportunities, particularly during the last year of the undergraduate experience.	1.4 Identify, strengthen and support inter-disciplinary or trans-disciplinary research, scholarship or creative activities.
3. Recruit and retain a high-quality and diverse faculty and staff.	3.1 Conduct campus climate surveys and aggregate data on a regular basis. Report findings to the campus community.	3.1 Identify ORSP staffing needs and explore creative models to increase support capacities at the department and college level.
	3.8 Diversify and grow opportunities to promote faculty teaching, scholarly and creative activities, and support services to enhance the professional lives of faculty.	3.2 Provide and support professional development opportunities for faculty and staff that aim at developing their competencies in understanding and supporting the success of CSUF's diverse community.
4. Expand and strengthen our financial and physical capacity.	4.10 Define an overall university goal for revenue from self-support/entrepreneurial activities.	4.1 Identify goals for research and scholarly activity and explore models that encourage faculty pursuit of extramural funding.
	4.11 Develop appropriate financial models and business plans in each self-support/entrepreneurial program to realize net revenue targets.	4.2 Collaborate with campus partners to develop a sustainable self-support activity and revenue model.

Students

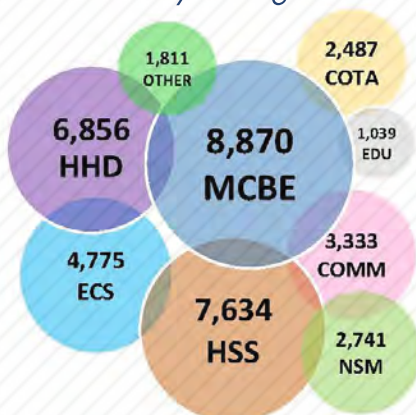
Student Enrollment

2018-2019, State-Support



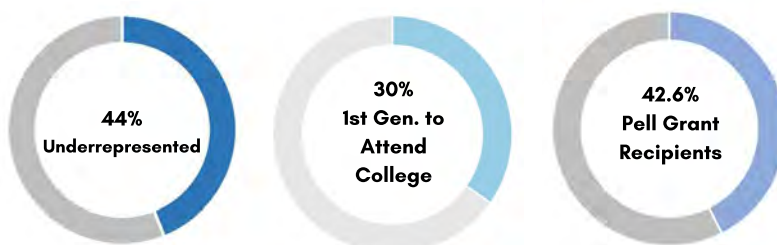
CSUF has **55 undergraduate** and **55 graduate programs**, including a **doctorate in education** and **doctor of nursing practice**.

of Students Enrolled by College



Accredited by the **WASC** Senior College and University Commission (**WSCUC**) & designated as a Hispanic-Serving Institution (HSI).

Statistical Highlights



No.3

U.S. News & World Report ranks CSUF as No. 3 on its Top Public School list and among in its top regional universities of the West.

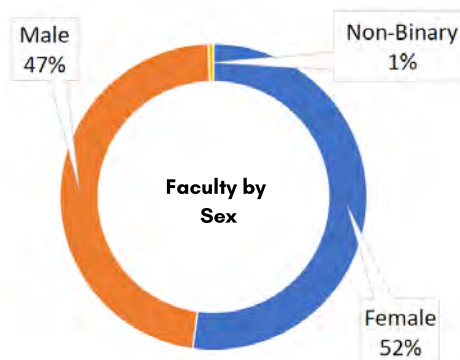
Instructional Faculty

IPEDs Data Snapshot as of Oct 31

55% Tenure Density

Faculty Headcount

Professor	392
Associate	225
Assistant	228
Lecturer	1449



Diverse Issues in Higher Education ranks CSUF No. 2 in the nation for baccalaureate degrees awarded to underrepresented students (U.S. Dept of Education Dec. 2019)

Publication Record

CSU Fullerton produced a total of **590** Web of Science™ indexed publications in 2018, **one of the highest among the CSU campuses**. In the past 5 years, CSU Fullerton contributed a total of 2,897 Web of Science™ indexed publications*.

5-Year CSUF Publication Record



* As of January 22, 2020



590
TOTAL
PUBLICATIONS IN
CY 2018



2,897
5 YEAR WEB OF
SCIENCE
PUBLICATIONS



135
NUMBER OF
AWARDS IN
2018-2019



\$28M
TOTAL
AMOUNT
AWARDED IN
2018-2019



Understanding Development in Autism

Discipline: Child Development

Autism spectrum disorder (ASD) is a neurodevelopmental condition that is estimated to affect 1 in 59 children and involves significant impairment in social communication and the presence of rigid, repetitive, or restricted behaviors. With substantial environmental support, many children with ASD can make remarkable gains over time; however other children with the disorder continue to struggle or even deteriorate in functioning with age.

How can parents promote the development of their children with ASD? Why do some children with ASD respond to certain supports while others do not? What underlies challenging behavior, which is common in ASD and interferes with learning? What parenting behaviors might be particularly helpful or concerning for different children with ASD?

Dr. Jason K. Baker and Dr. Rachel M. Fenning, Associate Professors of Child and Adolescent Studies and Co-Directors of the Center for Autism at California State University, Fullerton are investigating how biological and parenting factors combine to support or undermine the development of children with ASD. They are particularly focused on the role of child psychophysiological processes and parenting behavior in the development of children's emotion regulation, which is considered a major contributor to challenging behavior in ASD.

This research, **funded by the Eunice Kennedy Shriver National Institutes of Child Health and Human Development, has identified certain biological arousal profiles that can place children with ASD at risk for, or confer resilience against, the development of challenging behavior.** Moreover, many of these biological processes interact with various parenting behaviors, highlighting the important role that parents play in the development of their children with ASD, and providing insight into why different children may respond differently to similar parenting behaviors.

This work is part of a host of research, service, and training activities that comprise the CSUF Center for Autism, a collaboration between multiple colleges on the CSUF campus. **Internships with Drs. Fenning and Baker train students in children's social emotional development, parenting, and evidence-based practices for children with autism and related neurodevelopmental disorders.**



Big Data Discovery and Diversity

Discipline: Data Science-related fields (Public Health, Mathematics and Biology)

Technological, medical, diagnostic and other scientific advances have contributed to generating enormous amounts, varieties, and sources of complex big data that have vast potential for the creation of new knowledge, particularly in relation to primary and secondary disease prevention. However, the newly emerging field of big data science (BDs) has inherent challenges of utilization and value. **Funded by the NIH Big Data to Knowledge (BD2K) Enhancing Diversity in Biomedical Data Science (R25) program**, with **collaboration from four colleges on campus**, key faculty (**Archana McEligot, Sam Behseta, Math Cuajungco** and multiple other faculty), and **external institutions**, the **Big Data Discovery and Diversity through Research Education Advancement and Partnerships (BD3-REAP) program** at CSUF, has embarked on providing comprehensive didactic and research opportunities in BDs for CSUF undergraduates, improving student research exposure and training, and attitudes towards BDs. **BD3 scholars have gained skills in computation**, including **Python, R** and **MATLAB**, and modern statistical techniques such as **Lasso, Random Forest** and **Ridge**. **Importantly, BD3 scholars applied big data science skills to tackle large epidemiologic and neuroimaging data to address important biomedical questions.**

Students **Cydney Parker, Galilea Patricio, Shaina St. Cruz, Stephen Gonzalez, Alysia Bright, Mimi Ngo and Gwen Lind** explored the large publicly available **National Health and Nutrition Examination data**, investigating research questions, such as the role of folate in depression in diverse populations, and links between physical activity and sedentary behavior on blood pressure and obesity. **BD3 scholars** gained appreciation for **handling complex, large datasets**, including understanding **population sampling survey methods, weighting, cleaning, merging** and **identifying appropriate variables**. In partnership with USC, students utilized MATLAB and wrote scripts for fMRI datasets, identified potential biomarkers for Post Traumatic Epilepsy, and explored Alzheimer's risk factors among Mexican-Americans, conducted brain imaging with biomarkers in neurodegenerative disorders in Mexican-Americans and predicted brain age by combining brain MRI data with deep-learning neural network algorithms.

Of the initial twelve (12) scholars trained, all either co-authored a peer-reviewed manuscript and/or presented at national or regional meetings. Further, of the BD3 Scholars who applied to graduate school (50%), all were accepted into the graduate programs of major research institutions including UCLA, Dartmouth, Emory, University of Chicago and USC. Two BD3 scholars indicated that the **"program has changed my life"**.



Surface rupture mapping of the M7.1 Ridgecrest Earthquake

Discipline: Geology

Dr. Sinan Akciz is an assistant professor of geology whose research interests are in structural geology and paleoseismology. He conducts field-based research to understand the evolution of fault systems with particular focus on the dates and magnitudes of past surface rupturing earthquakes along the numerous faults that form the San Andreas Fault system. He has received funding from the U.S. Geological Survey and Southern California Earthquake Center to constrain ages of southern San Andreas Fault earthquakes better. **Along with his CSUF colleague Prof. Matt Kirby, he investigates the influence of climate-change driven heavy precipitation events to incise new channels in arid- to semi-arid settings in Central California.**

When the **M7.1 Ridgecrest earthquake, the largest earthquake experienced in Southern California in nearly two decades occurred on July 5th**, Dr. Akciz joined his colleagues from U.S.G.S, California Geological Survey and other academic institutions to **rapidly map the surface rupture and make detailed surface offset measurements before they deteriorated**. Surface trace complexity and slip magnitude data are essential for scientists to create and ground-check their three-dimensional models of the ground's physical displacement. This data is also crucial for engineers and emergency responders as they plan their response to infrastructure and plan for future earthquakes. "Most of the Ridgecrest earthquake rupture occurred on previously unmapped faults, so we would not have expected to have an earthquake where it occurred," said Dr. Akciz, who mapped the southern 15-km portion of the ruptured fault trace and made offset measurements. "With each earthquake, we learn a bit more about the complicated process of earthquake occurrence and its surficial effects. **These will ultimately help us build more earthquake-resilient structures and communities.** While we get excited about such an event as scientists, non-affected residents of California need to remind themselves that they are living in an earthquake country, and the next one might be a lot closer to where they live".



Creating Translanguaging and Inclusive Spaces for Newcomer/Emergent Bilingual Students

Discipline: Biliteracy-Secondary Education

Newcomer/Emergent Bilingual students are an intrinsic and vital asset of who we are as a society. It is our task as educators to develop just, equitable, and inclusive learning spaces for all students but, even more importantly, to ensure equal access for all the students to these spaces. **Translanguaging methodologies draw from and reinforce students' linguistic repertoires and their socio-cultural capital.** The **objective is to build bridges that newcomer/emergent bilingual students and their families can cross to develop a strong sense of belonging without losing a single layer of the multidimensional identities, languages, and knowledge they bring to California K-12 public schools.**

The **CA Department of Education states that there are nearly 1.2 million English Learners/Emergent Bilingual students in California schools;** of these, **close to 160,000 are identified as newcomer students,** or students who have been enrolled in United States schools for fewer than 12 months. California State Universities have led the duty to develop Teacher Education Programs in which pre-service teachers learn how to develop, implement, and assess culturally, linguistically, and ideologically responsive pedagogies.

One of the key aspects when equipping teachers with transformational methodologies is having the skills to create translanguaging and inclusive classrooms. Over the years, school districts across the country have struggled to identify programs that are specifically designed for newcomer/emergent bilingual students; programs focus on one aspect, ignoring an all-inclusive approach. Cognizant of these gaps, **Dr. Fernando Rodriguez-Valls**, College of Education, and his colleague **Dr. Alison Dover** partnered with **Anaheim Union High School District (AUHSD)** to create the **Summer Language Academy (SLA)**, a program explicitly designed for newcomer/emergent bilingual students.

SLA is unique in various aspects: **a) three educators** –a credentialed teacher, an instructional assistant, and CSUF teacher candidate – **lead the instruction in each classroom: they co-plan and co-teach,** **b) language skills are framed within translanguaging pedagogies:** students are encouraged to challenge a monolingual thinking that separates and antagonizes languages, and **c) the concept of Standard English is disrupted as a construct framed by colonial lenses, hence, students are equipped with tools to languaging using their multilingual voices.** Since the first iteration of the Summer Language Academy in AUHSD, the program has expanded and it has been successfully implemented in other school districts.



Incorporating Interprofessional Education (IPE) through Standardized Patients into Graduate Student Education

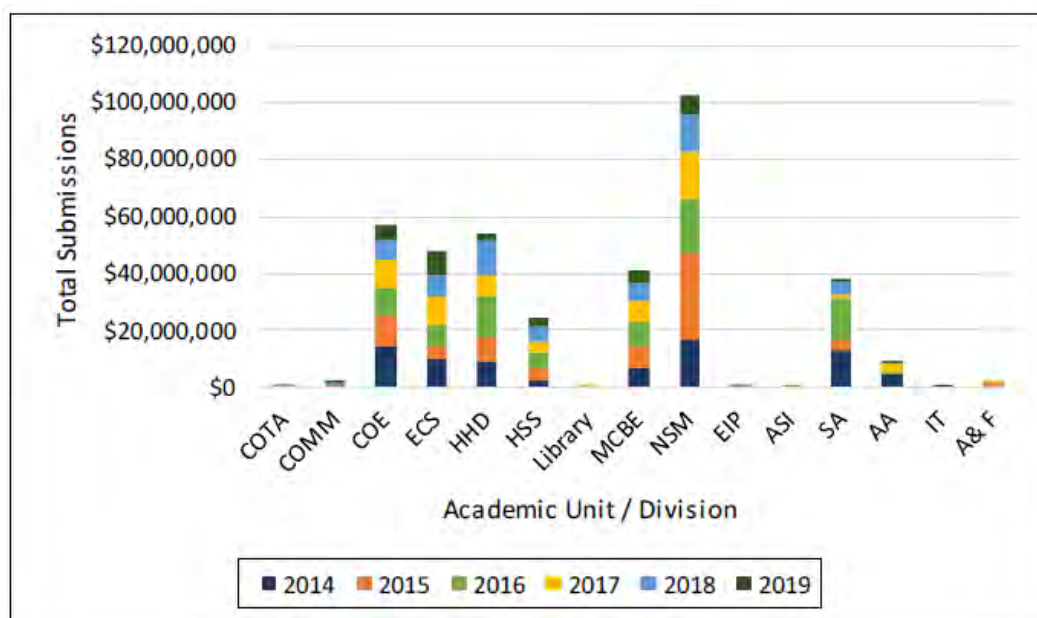
Discipline: Communication Sciences and Disorders

As **concerns about medical errors, patient safety and health care delivery quality** were raised by reports issued by the Institute of Medicine in the early 2000s, **health care leaders** within the U.S. and beyond **recognized the need for a more patient-centered, team-based approach to medical care**. Echoing these concerns, in 2010 the World Health Organization (WHO) published a **"Framework for Action on Interprofessional Education (IPE) and Collaborative Practice (CP)"**. According to the WHO, "IPE occurs when two or more professions learn with, about, and from each other to enable effective collaboration and improve health outcomes". Soon after, the American Speech-Language Hearing Association (ASHA), incorporated IPE & CP into their strategic plan and envisioned future of the field.

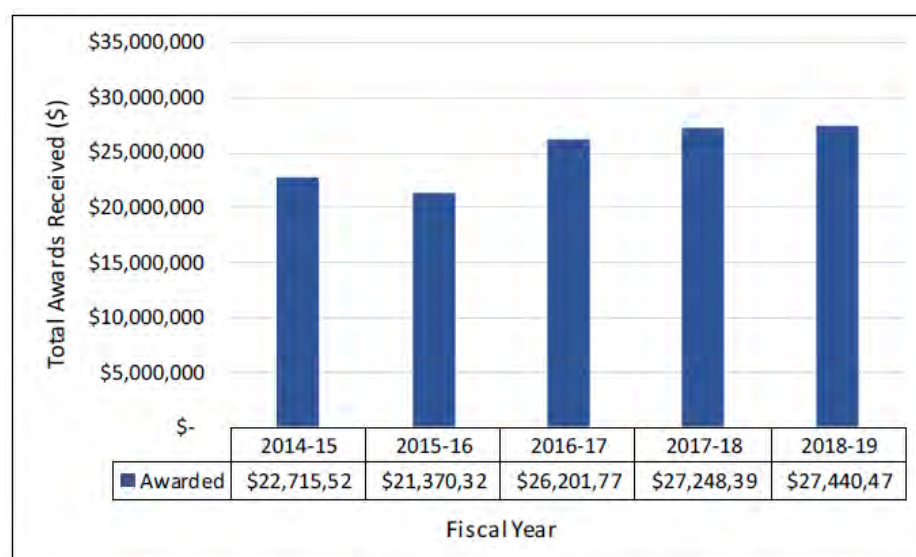
Dr. Phil Weir-Mayta, a Speech-Language Pathologist (SLP) and Assistant Professor in the Department of Communication Sciences and Disorders, **incorporated IPE and CP into his graduate course and designed a research study to capture student learning outcomes**. He worked closely with **Barbara Doyer, MS, BSN, RN** from the School of Nursing to **introduce both SLP and nursing students to IPE and CP through the use of simulation experiences in the School of Nursing's Simulation Lab**. The Lab houses high fidelity **human patient simulators (HPS)** that simulate real patients in a high-tech, real-world hospital setting.

The research study was developed to 1) increase the knowledge of students regarding the roles and responsibilities of nurses and SLPs in the assessment and intervention of patients with tracheostomies and swallowing disorders; and 2) increase SLP skill level preparedness for entering a hospital setting for the first time as a graduate student intern. **The goal is for students to learn from each other while building inter-professional communication skills and decreasing patient care anxiety by allowing the student to repeat skills until they gain an enhanced level of competence and confidence**. A pre-test to post-test research design using a survey loosely adapted from Hill et al., 2013 and King et al., 2010, was employed in which SLP students answered questions addressing their level of confidence, preparedness, knowledge, clinical competence, and anxiety. Results of t-tests revealed a high level of significance ($p < .001$.) between pre-test compared to post-test responses, **suggesting that inclusion of an IEP-HPS experience into a SLP graduate level course helped to foster a higher level of preparedness of SLP students to work with nurses and perform skills required of a SLP graduate student intern** upon entering their medical internship placement.

5-Year Grant Submission Trend



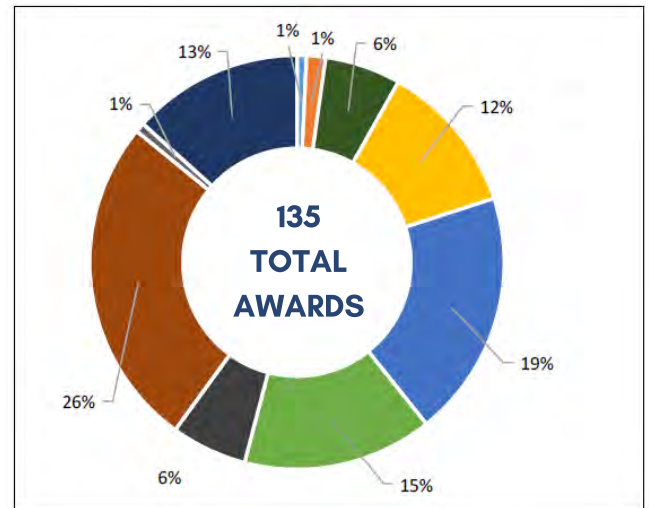
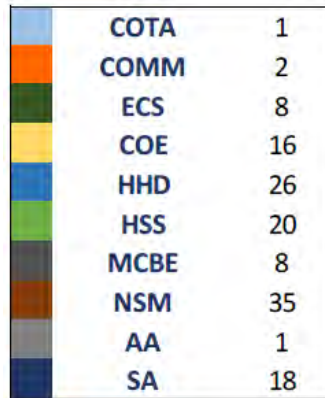
5-Year Awarded Funds Trend



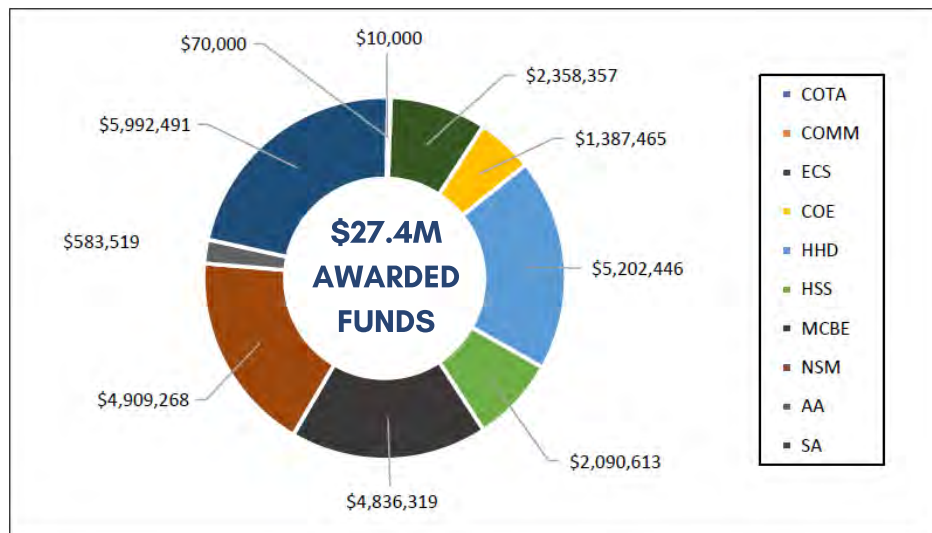
COTA	College of the Arts	NSM	Natural Sciences and Mathematics
COMM	College of Communications	EIP	Extension and International Programs
COE	College of Education	ASI	Associated Students Inc
ECS	Engineering and Computer Science	SA	Student Affairs
HHD	Health and Human Development	AA	Academic Affairs
HSS	Humanities and Social Sciences	IT	Information Technology
LIBRARY	Library	A&F	Administration & Finance
MCBE	Mihaylo College of Business and Economics		

2018-2019 Awards Snapshot

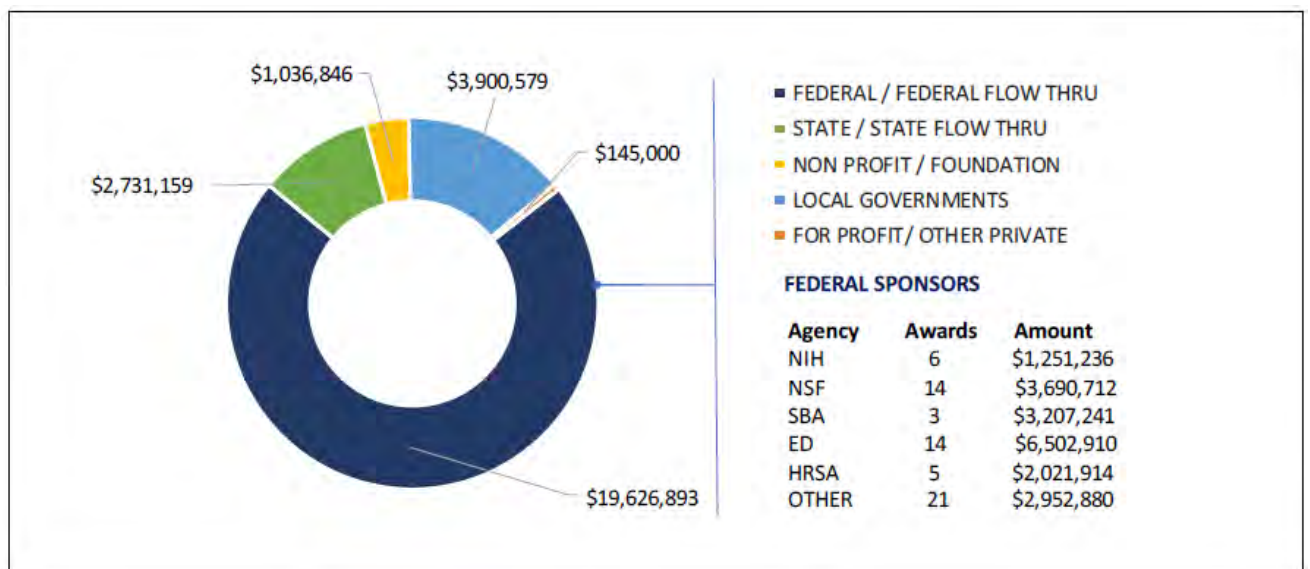
Number of Awards
Per College



Awarded Funds Per College



Funding by Sponsor Type



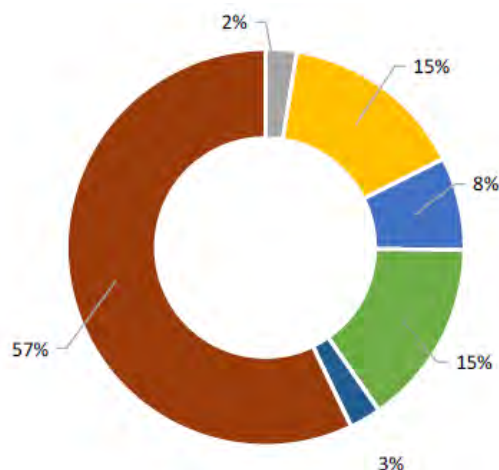
* NIH = National Institutes of Health, NSF = National Science Foundation, SBA = Small Business Administration, ED = Department of Education, HRSA = Health Resources and Services Administration.

2018-19 Intramural Grant Overview

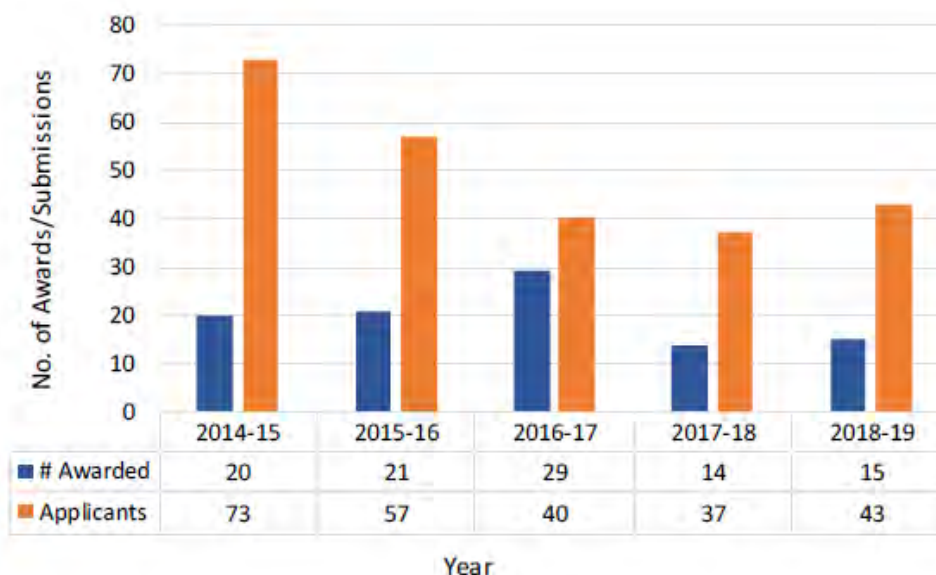
The Office of Research and Sponsored Projects through the Faculty Research Committee (FRC), supports faculty scholarship with competitive intramural funding intended to stimulate and support faculty research and creative activities, and to assist faculty in successful competition for external funding. This support takes the form of two awards: **Research Scholarship and Creative Activity Incentive (RSCA) grants** which provide up to \$15,000 per award, and **Junior/Senior Intramural grants** which provide up to \$5,000 or 1 assigned time (3 Weighted Teaching Units).

FY 2018-19 RSCA Incentive Grants Awards

COLLEGE	# OF AWARDS	AWARD AMOUNT (\$)
COE	1	\$5,000
ECS	2	\$29,936
HHD	1	\$15,000
HSS	2	\$29,983
MCBE	1	\$5,095
NSM	8	\$113,110

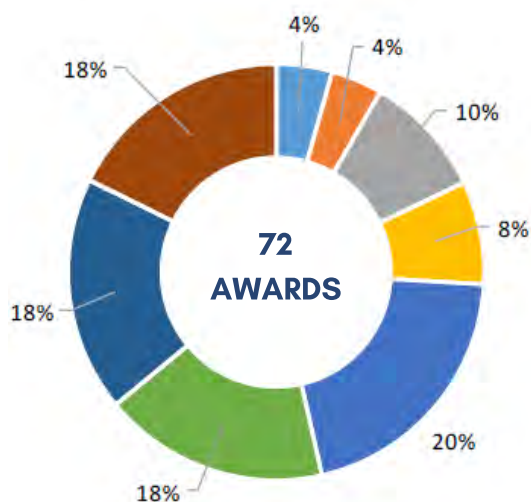


5-Year RSCA Incentive Grants Awards



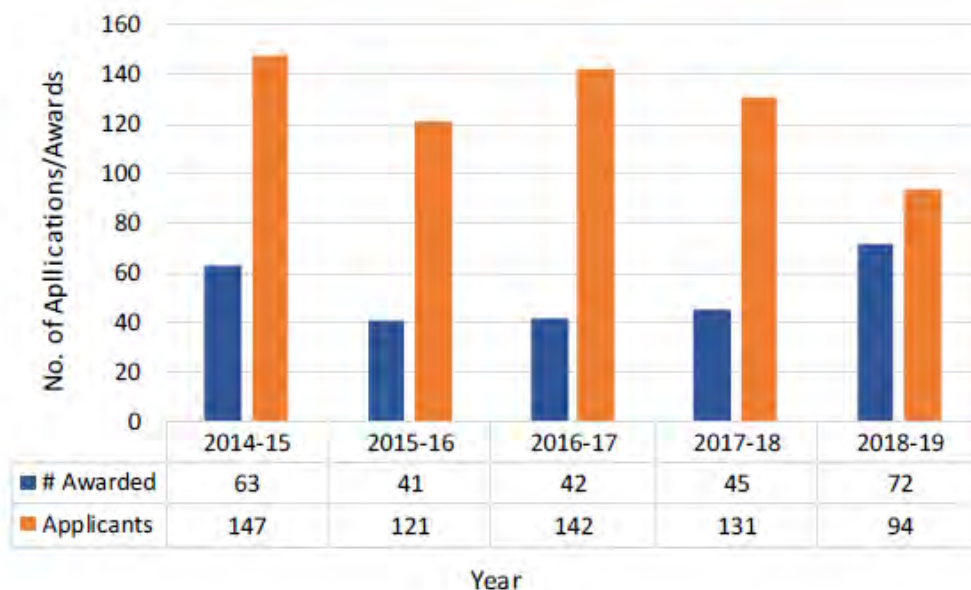
IN 5 YEARS
\$1.032M & 99 Awards

FY 2018-19 Junior/Senior Intramural Grant Awards



COLLEGE	# OF AWARDS	AWARD AMOUNT (\$)
COTA	3	\$17,816
COMM	3	\$16,408
COE	7	\$39,185
ECS	6	\$32,816
HHD	14	\$84,080
HSS	12	\$71,811
MCBE	13	\$74,856
NSM	14	\$72,538

5- Year Junior/Senior Intramural Grant Awards



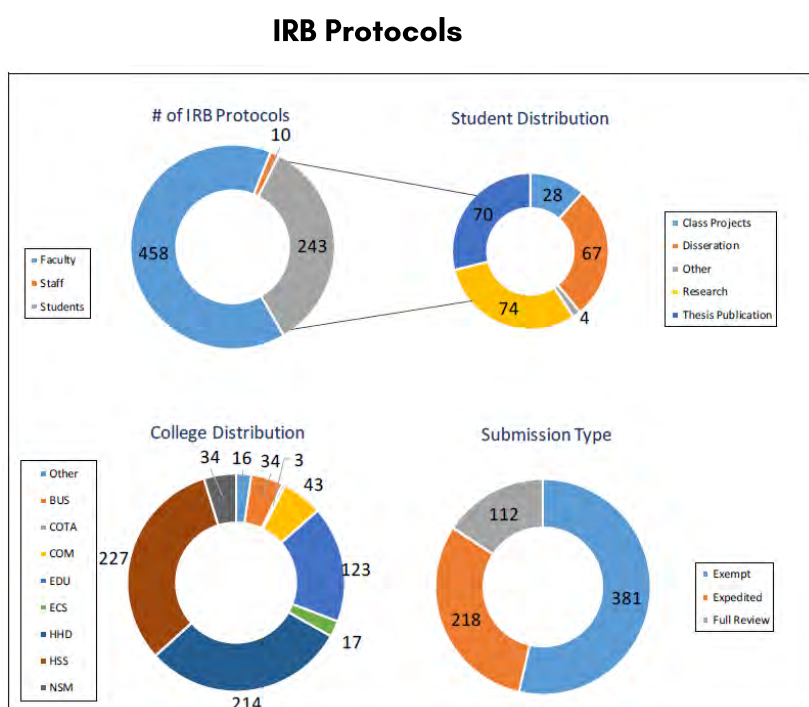
IN 5 YEARS
\$1.844M & 263 Awards



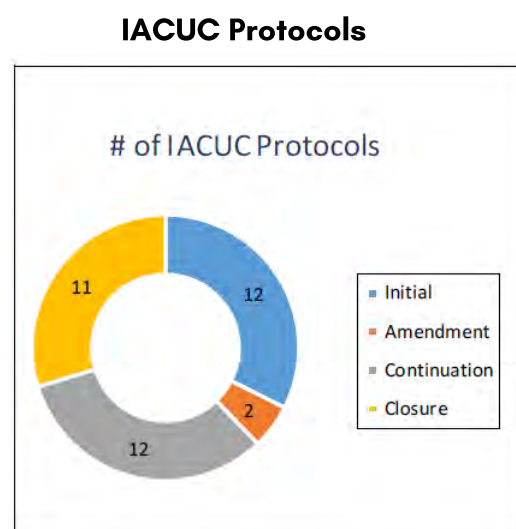
Office of Research Compliance

The Office of Research Compliance is tasked with ensuring that research at CSUF is conducted safely, ethically and legally. This Office facilitates and coordinates University's Institutional Review Board (IRB), Institutional Animal Care and Use Committee (IACUC), and Responsible Conduct of Research (RCR).

Number of Protocols Reviewed/Approved* for FY 2018-2019



Total Protocols	
IRB	711
IACUC	37



* Of the total 711 IRB protocols submitted, 548 were distinct studies. The number of IRB protocols listed above consists of all initial, modification and renewal notices submitted to the Compliance Office for review.

Under the directive of the Provost, ORSP is led by an Associate Vice President (AVP) for Research and Sponsored Projects. Over 30 staff work in five (5) distinct areas to support campus research, scholarship and creative activities.

Office of Research Development (ORD)

ORD assists faculty in identifying funding sources for their research and creative activity; promotes institutional programming and collaborative grant development; and provides guidance, training, and assistance in preparing high quality, competitive proposals.

Office of Grants and Contracts (OGC)

OGC assists with proposal preparation, review, and submission to external funding agencies; ensures compliance with agency requirements; reviews grant awards and serves as lead in the issuance, review, and negotiation of contracts, subcontracts, and related agreements.

Office of Sponsored Programs (OSP)

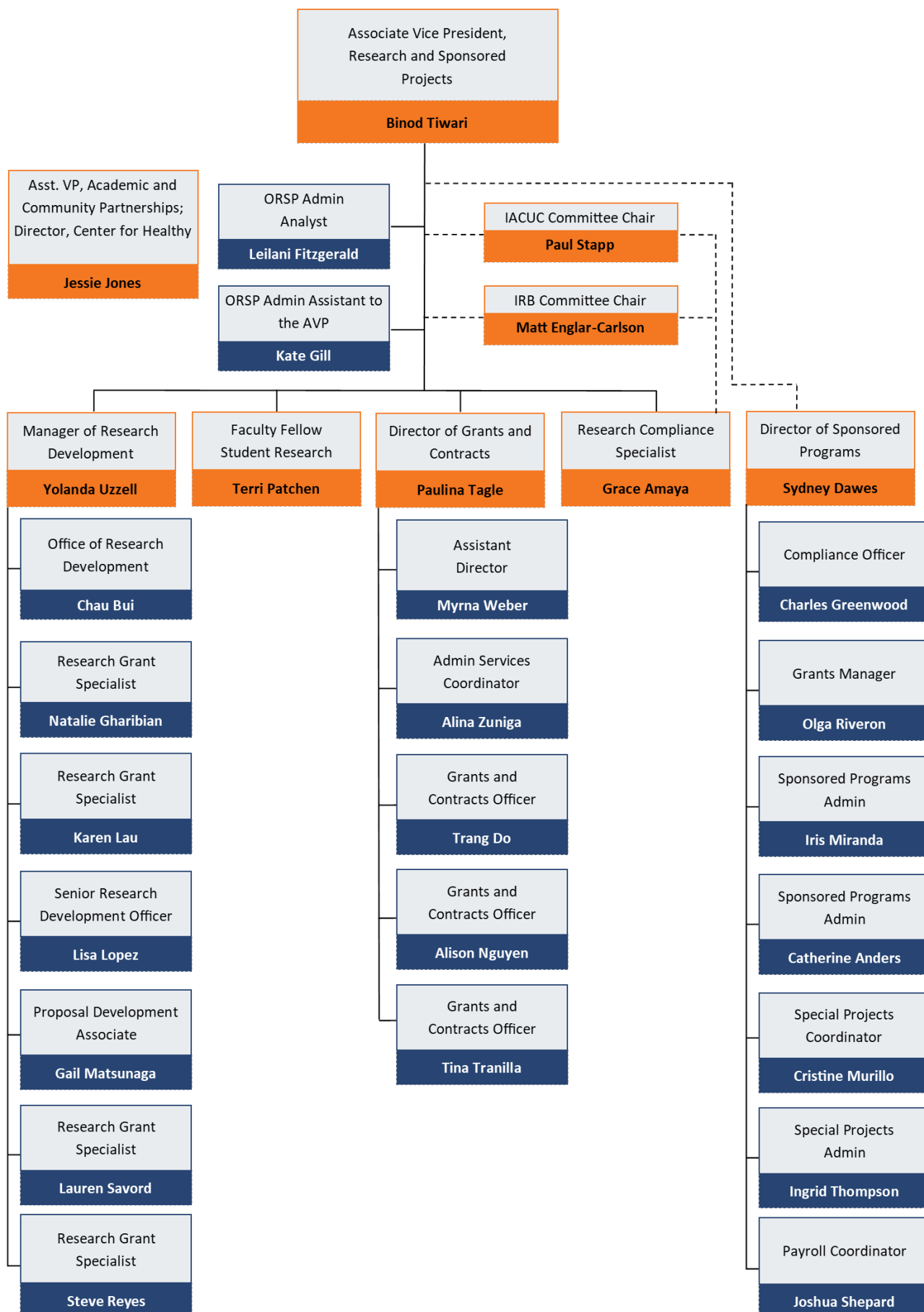
OSP oversees the post-award administration of grants and contracts awarded to the university through the CSU Fullerton Auxiliary Services Corporation. Services include invoicing and grant accounting, submission of required reports (e.g, effort reporting), maintaining records of compliance, handling audits, and negotiation of the University's indirect cost agreement.

Office of Research Compliance (ORC)

ORC ensures university-wide compliance with federal, state, local, and funding agency policies and regulations that involve research and creative activities, including use of human and animal subjects and policies regarding conflict of interest and responsible conduct of research.

Faculty-Student Research

In coordination with the Faculty Fellow, promotes and expands opportunities for faculty-student research and creative activities that increase student engagement, learning and success; Identifies and provides resources needed to support student scholars and faculty mentors and enhances campus student research climate; Organizes on-campus events including CSU Student Research Competition (SRC) and Student Creative Activities and Research (SCAR) Day; Increases student participation in off-campus student research competitions (SCCUR, NCUR, CUR Posters on the Hill).





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