

COMMITTEE ON RESEARCH Annual Report 2016-17

To: Academic Senate, Santa Cruz Division:

The Committee on Research (COR) is charged with reviewing the campus and systemwide policies and issues related to UCSC's research mission. The committee also advises and collaborates with the Office of Research to promote faculty research. COR directly supports campus research by awarding faculty research grants, special research grants, and travel grants, and works to develop policy and strategy that assist UCSC's research goals.

In 2016-17, the Committee on Research addressed a broad range of campus research policy and infrastructure issues. We have continued to develop new models for COR seed funding. This year we implemented a new approach to COR seed funding to support research collaborations for Special Research Grants; provided feedback to the Vice Chancellor for Research (VCR) Scott Brandt on a proposal for Collaborative Centers; worked with the Office of Research on new research development strategies; participated in the ongoing review of the Institute for Marine Sciences; and completed our survey of shared research resources, distributing the results to faculty. We have also continued to explore UCSC's funding model for research, opposing budget cuts by documenting the effects of COR seed funding on research overheads and research culture. The committee also developed a survey to explore faculty views on research support and culture which will be deployed in fall 2017. Much of the Committee's time, particularly during winter 2017, was spent evaluating proposals and making awards through our various faculty research grants programs (Faculty Research Grant (FRG), Special Research Grant (SRG), New Faculty Research Grant (NFRG)), and we have introduced a modified collaborative funding model to tap into UCSC's research strengths.

An overview of the committee's work in 2016-17 follows:

Research Related Activities

Response to Budget Cuts to COR Research Grants

One of COR's main responsibilities is to solicit and review research proposals to support faculty-led research activities. However, the committee's ability to support faculty research was severely compromised by the reduction we received to our budget. This was cut by \$40,704, a 15.8% decrease compared with 2015-16. The reduced funding made our grant awards process more difficult and we received many messages from individual faculty and Department Chairs expressing their concerns about proposals we were unable to fund.

COR worked with the Graduate Council to communicate to CP/EVC Tromp that this funding cut is shortsighted. COR tracks the impact of prior funding on faculty grant submissions, allowing us to document the direct impact of COR funding in bringing research overheads into campus. Specifically, one single seed funded COR proposal led to an NIH grant that brought in overheads that were three times our overall annual budget. There are other similar examples of COR funds promoting grants and subsequent overheads, which suggests that COR grants, are critical for catalyzing research, and represent an excellent return on investment, making the cuts seem highly counterproductive. Similar serious impacts also resulted in the Arts and Humanities,

where the effects of reduced seed funding have very direct consequences; there are fewer mechanisms for providing extramural funding for highly significant book and creative projects that bring considerable research prestige to the campus. The absence of seed funding here means that many promising research projects may never be initiated.

Overall, COR seed funding provides an important mechanism that allows established faculty to explore high risk projects where it may be difficult to obtain federal funding. COR grants are critical for new faculty in initiating their research programs and to support shifts in research profile in later careers. The overall strategic importance of these grants for the campus is further shown by the number of applications we receive. This year alone we reviewed over 150 grants, which represents a quite significant proportion of Santa Cruz faculty, especially considering that some of these applications represent multi-faculty collaborations.

Perhaps most critically, such cuts sends out the wrong message in the context of stated campus goals to grow our graduate programs. COR seed funds often support graduate students with GSRs, since it is often the graduate students who generate the preliminary data that is used to seek larger extramural funding. Expanding our research enterprise by providing seed funding is absolutely essential for UCSC to enhance its research profile and increase the extramural funding that is foundational to growing graduate enrollments and further strengthening the research mission of our campus.

Given the dramatic investments in the Office of Research and University Relations in recent years, COR is concerned that the grant funds it distributes after rigorous peer review are being reduced according to formulaic cost-cutting calculations. Such an approach fails to acknowledge the strategic value of COR grants in supporting research across the campus, as well as growing the indirects pool for everyone.

We remain very concerned about direct campus support for research. In our 2015 analysis, COR found that just 1.8% of total research indirects were allocated to the committee. This return to faculty research seems unconscionably low given the role of COR grants in serving as a pipeline for supporting high risk research that often leads to successful grants. Furthermore it seems to fly in the face of the stated campus priorities for research and graduate growth. We look forward to receiving the CP/EVC's response to our request for reinstated funding (June 13, 2017).

Strategic Consultations with the Office of Research

The committee continued to extend a standing invitation to Vice Chancellor for Research Scott Brandt to attend relevant COR meetings to consult on issues of mutual concern regarding research policy and climate on campus.

The Office of Research is growing and the committee was able to consult with Research Development Director Audrey Levine and Assistant Vice Chancellor for Research, Industry Alliances & Technology Commercialization Mohamed Abousalem. They both presented on their new roles, responsibilities, and plans for research on campus. The committee looks forward to continuing to work and collaborate with them in the future.

Director Audrey Levine is responsible for creating initiatives and mechanisms to strengthen the campus research portfolio. She has broad expertise in industry, academia, and the federal government, including the National Science Foundation and Environmental Protection Agency. Her office plans to support researchers by aligning research interests and capabilities with funding opportunities, facilitating early career proposal and strengthening development of large-scale initiatives. Based on her NSF experience, Director Levine provided invaluable feedback to COR when we were developing guidelines for our new collaborative research initiative. We have found our consultations with her extremely useful for developing and formulating other research initiatives.

Assistant Vice Chancellor for Research, Industry Alliances & Technology Commercialization Mohamed Abousalem manages the campus portfolio and licensing activities with the development of industry alliances and technology transfer and commercialization program. His office has submitted a letter of intent to submit a \$2.2 million proposal to the Office of the President for an initiative called SPLICE- Support Program for Long-term Innovation, Commercialization & Entrepreneurship. COR met with AVCR Abousalem, providing him with feedback about proposals to develop alliances and commercialize research intellectual property.

Office of Research & Division of Graduate Studies' Center of Excellence Proposal

The Office of Research and Division of Graduate Studies verbally briefed the committee on the initial Centers of Excellence proposal in November 2016. The main goal of the proposal was to secure large agency grants where UCSC has lower success rates than comparable institutions and where such grants engage large numbers of graduate students. The aim was to secure these large grants through collaborative centers in relevant targeted areas, with centers ultimately becoming self-supporting. The proposal aimed to have the Office of Research, Graduate Division and CP/EVC provide funding for both small grants for planning centers and larger grants for mature self-sustaining centers.

The committee had a robust discussion with VCR Scott Brandt and AVCR Tedd Siegel, who consulted with the committee on the revised proposal in April. Overall, the committee was positive about the proposal, however with reservations. We believe it's imperative that the campus follow an active research growth strategy to reduce the risk of losing rebenching funds and to supplement existing strategies from Graduate Studies to increase graduate numbers.

We believe the initiative sends out a clear message to our campus both that large scale collaborative research is supported and that the campus is seeking large scale grants. We approve the proposal's aims to directly support graduate funding and support graduate student researchers, as opposed to more indirect strategies, for example, commissioning external consultants or acquiring software (e.g. Academic Analytics). COR members also strongly endorsed the proposal's 'bottom-up' strategy which allows faculty to opportunistically form collaborations to identify promising sources of funding, rather than top down recommendations in key areas identified by the Office of Research or Graduate Division. And with the Office of Research also providing direct faculty support for research discovery, this should also increase the chances of funding success. However the committee felt we needed to better understand the Office of Research Development's role in working with centers to develop opportunities, as this is a key potential benefit, and so more details would be useful. Likewise, we wanted to know

whether the Office of Research had concrete ideas about strategic areas where centers were likely to be successful.

Furthermore, the proposal seems mainly focused on STEM, being relatively silent about Arts and Humanities, as well as the role of Foundations in supporting research. Members believe there are opportunities and would like the proposal to expand upon this aspect. In terms of organization, we anticipate that administration of a cross divisional Center will be a considerable amount of work. The proposal indicates there will be course relief or summer salary ‘by exception’, leading to questions about workload and incentives for participating faculty. There are also issues about Center faculty and their participation in regular department activities. More information about faculty support and incentives to participate in the centers would have been helpful. In terms of implementation and shared governance, we felt that much more could have been said about the involvement of Senate Committees (i.e. Graduate Council and COR) in the Center approvals and steady state administration

The committee reviewed a revised version of the proposal (April 10, 2017) and consulted with Assistant Vice Chancellor Siegel on April 25, 2017. The revision incorporated several of our recommendations; it was scaled back to focus on smaller scale grants which we believe is a significant improvement. However the revision remained unclear about timescales as well as logistics. We look forward to further developments of this much needed initiative.

Modifications to the Faculty Research Grants Process to Target Collaborative Research

Despite our budget cuts, COR continued to work on developing new research initiatives for seed funding to promote research. Continuing activities begun in 2016-17, COR reviewed and extended the faculty grants process in consultation with VCR Brandt. Following analysis, we identified a priority of supporting larger collaborative activities. As a result, our COR grant call explored ways to identify, reward and showcase grants that promoted new collaborative research activities. Collaborative research was defined as projects, activities, or scholarly works where two or more investigators work together towards a unified, focused, and well-integrated outcome that could not be accomplished by working individually. It was our expectation that successful collaborations would build complementary, synergistic, and catalytic skills and expertise. We worked with the Office of Research’s Development Director Audrey Levine to develop a new call for collaborative proposals, which was successful in eliciting fourteen SRG proposals from faculty who were proposing new research collaborations.

Six of these collaborative proposals received additional seed funding from the Office of Research, doubling the awards for these applications, and more details are given below about these successful proposals. COR greatly appreciates and acknowledges the Office of Research generous support to enhance collaborative research on campus. Next year, COR will request a short report from awarded proposals to understand how we can further enhance collaborative efforts on campus and will explore modifications of this process, possibly involving a series of themed workshops.

Research Grants

Our main activity during the winter quarter involved grant reviewing. In 2016-17, the committee had two funding sources: the University Opportunity Fund and Education Fund.

Budget Source	Amount
Opportunity Fund – Indirect Cost Receipt from federally funded grants	\$337,466
Education Fund – Indirect Cost Receipt from privately funded grants	\$44,987
Total	\$382,453

Each year, the committee solicits applications for its three research programs: New Faculty Research Grants (NFRG), Faculty Research Grants (FRG) and Special Research Grants (SRG). This year there were 151 proposals, of which 66 (44%) were funded. Our approach followed prior COR policy in funding the majority of FRGs which tend to be for smaller amounts. Furthermore, as noted above, this year the Office of Research provided additional seed funding for SRGs. We were also attentive to supporting non-tenured and junior faculty.

New Faculty Research Grants (NFRGs)

The NFRG program provides new faculty with access to funding in the current fiscal year. It has proved helpful to new faculty as they establish their research careers. Of the 15 NFRG requests, 11 were funded, the award amount decreased from last year's \$27,218 to \$19,000.

Faculty Research Grants (FRGs) and Special Research Grants (SRGs)

As noted earlier, we modified the Special Research Grant submission and evaluation process to solicit proposals that support collaboration, in particular, proposals that involved cross divisional collaborations. The committee received and reviewed fourteen collaborative research proposal and awarded additional seed funding to the following proposals:

- Angela Brooks, Biomolecular Engineering with Susan Carpenter, Molecular Cell & Developmental Biology: *Using high-throughput approaches to understand how inflammation affects protein expression.*
- Miriam Greenberg, Sociology with Christopher Wilmers, Environmental Studies: *New Frontiers for Sustainability: Exploring Links between the Affordable Housing Crisis and Puma Habitat Fragmentation in Santa Cruz and the Bay Area.*
- Scott Oliver, Chemistry & Biochemistry with Shaowei Chen, Chemistry: *Heteroatom-doped porous carbon derived from metal-organic frameworks for electroreduction of oxygen.*
- Karen Ottemann, Microbiology with Melissa Miller, California Fish & Game Manager: *Characterization of the antibiotic sensitivity profile of a newly isolated pathogen of sea otters, Helicobacter enhydrae.*
- Chad Saltikov, Microbiology & Environmental Toxicology with Rocco Mancinelli, NASA AMES Research Scientist & Research Associate of the Microbiology and Environmental Toxicology: *Microbial Community Structure as an Indicator of Environmental Health Associated with Desalination Plant Brine Waste*

- Matthew Wagers, Linguistics with Maziar Toosarvandani, Linguistics: *Universal language processing principles in Santiago Laxopa Zapotec*

The Office of Research is interested in promoting research in new areas and creating opportunities in interdisciplinary domains where systematic collaboration is needed to obtain funding. COR will continue to consult with the VCR in support of these goals. The committee will also continue to explore opportunities to support collaborative research.

While it is hard to draw concrete conclusions about the success of our collaborative initiative on the basis of a single year, we were disappointed to see a decrease in the overall number of grant applications which were down from 177 in 2015-16, although our overall submission levels are close to historic averages. However, our significant budget cuts meant we were able to support many fewer grants than in previous years, which as we noted above, generated significant, legitimate negative responses from faculty including from two department chairs in the Art Division.

Travel Grants

The committee supports faculty travel to scholarly meetings and intercampus travel to research facilities, field stations, and sister UC campuses. Senate faculty may apply for a \$700 or \$250 travel grant respectively.

Our overall spending for all grants is below. Budget cuts meant we were compelled to turn down many deserving grant applications, a situation that will be exacerbated in subsequent years if funding levels are not reinstated.

Research Grant Program	Funded	Amount
New Faculty Research Grants (NFRG)	11	\$19,000
Faculty Research Grants (FRG)	32	\$48,702
Special Research Grants (SRG)	23	\$166,729
Travel Grants	183	\$125,841
Total	249	\$360,272

Change to COR's Charge

The committee spent some time discussing its role and campus responsibilities. Following that discussion, we concluded that COR should be more directly involved in proactively developing research strategy and policies. We therefore proposed changes to COR's campus charge to reflect these changed priorities. These changes are bolded below. The committee's revised Bylaw 13.27.2 was presented to and approved by the Academic Senate on November 18, 2016.

Bylaw 13.27.2 (1) The committee informs the Division on issues pertaining to the research mission at UCSC and the University of California, consults with the Vice

Chancellor for Research (VCR), advises the Chancellor, and explores new initiatives to enhance the quality, relevance, sustainability and support for research. For example, the committee addresses campus research budgets, research infrastructure, policy and strategy, promotion and coordination of multidisciplinary research, collaborative research among faculty, and policies governing acceptance of extramural funding.

Survey of UCSC Campus Research

COR spent multiple meetings preparing a survey to poll faculty concerning campus support for research. The survey had four main goals: (a) to obtain faculty feedback about the current COR grants process, including how COR grants are announced and reviewed, (b) to solicit reactions to our new initiatives, including support for campus themes (2015-16) and collaboration (2016-17), and (c) to explore faculty evaluations of the administrative support provided by the Office for Sponsored Projects and Office of Research, including ways that these organizations support faculty in submitting and administering grants. Lastly, we will provide faculty with opportunities to comment on the campus' research culture. We worked with the Institutional Research Assessment & Policy Studies, Assistant Director for Assessment Anna Sher to develop a survey which will be deployed in fall 2017.

Shared Research Facilities and Equipment

We completed a campus-wide survey and evaluation of shared research equipment and facilities. The survey documented shared research infrastructure and equipment across the campus as part of COR's larger agenda to examine the current state and future possibilities for research on campus. Successive years of cuts have led to reductions in support for faculty research via direct COR funding. In addition there have been cuts to both shared research equipment and technical support at the divisional level. Our goal with the survey was twofold. First by documenting and publicizing such research resources we hoped to make them more readily accessible to campus researchers, as well as prospective faculty hires, post-doctoral candidates, and graduate students. Such documentation should also reduce the unnecessary duplication of share facilities by different researchers. Second we hoped in our survey to identify situations where research resources are underutilized or unused, where strategic support from the Office of Research or divisional Deans might allow these resources to be better exploited. We continue to work with the Office of Research to assess and potentially redress issues related to management, staffing, funding models and sustainability of these facilities. In particular we want to explore how these resources might be better publicized and used. Next year's COR committee will follow up to ensure that these resources are publicized on the Office of Research website.

Institute for Marine Sciences - Organized Research Unit Review

Another significant COR activity is to review campus Organized Research Units (ORUs). ORUs have not been adhering to the Regent's policy of regular five year reviews. The Office of Research initiated an ORU review with a self-study for the Institute of Marine Sciences (IMS). Committee members assisted the Office of Research by participating in the review process and provide the following recommendations for the future of IMS:

- Create a shared research vision
- Leverage planning support from the Division and Office of Research
- Develop a clearer funding model

- Recruit a new Director
- Recruit an effective advisory committee

As part of that review, we communicated to the Office of Research the need for obtaining more direct Senate committee feedback to improve the ORU review process. According to University of California's Compendium: Universitywide Review Processes for Academic Programs, Academic Units, & Research Units, the Senate should be involved more heavily, especially the Committee on Planning & Budget and Graduate Council, given the somewhat unusual role of funding and research support in the current IMS structure.

Other Committee Business

The committee discussed and provided feedback on various issues related to the Academic Senate and research related proposals, including:

- Baskin School of Engineering: Center for Research on Cyber-Physical Systems Proposal, 2/12/17
- Environmental Health & Safety: Draft Field Research Safety Plan & Policy, 1/24/17
- Systemwide Review: Draft Presidential Unmanned Aircraft System Policy, 4/7/17
- Systemwide Review: Proposed Revisions to the Lecturer Security of Employment Series: APM 285, 210-3, 133, 740, 6/13/17

Upcoming Agenda for 2017-18

The committee will further explore the following topics in 2017-18:

- Follow up on the significant budget cuts suffered by COR this academic year
- Follow up on campus funding for research, specifically the continued low rate of return of campus overheads to COR grants program
- Distribute and follow up on faculty survey of grants process, research culture and research support
- Collaborate with the Office of Research on efforts to enhance research culture on campus, to include developing collaborative research support
- Discuss greater support for graduate students
- Work with OR to propose new five-year review process for other organized research units on campus

Building a Collaborative Research Community on Campus

In addition to supporting collaborative proposals through the COR grants call, the committee discussed different approaches for faculty collaboration such workshops involving "one minute" research presentations, along with grant writing workshops to encourage collaborative research. Next year, the committee would also like to review Office of Research data such as PI submissions, success rates and grant re-submissions. In addition, we would like to offer interest-based opportunities for faculty to collaborate on shared research goals. Ideally this might be supported by a series of workshops throughout the year (two to three) starting in early November. These workshops might identify research themes that again might be supported in the SRG funding process by Office of Research seed funds. COR would also like to facilitate collaboration between the Arts and Humanities Division to include specific foundation workshops, grant support, and increased access to research funds by ensuring that COR grants proposal have a faculty reviewer from the Arts Division.

Faculty Workload Policy

As part of efforts to provide more incentives to faculty for undertaking research, members would like to review campus workload policies. We want to explore possible incentives for faculty who mentor a large number of graduate students or who administer large numbers of grants. Each division on campus seems to have different practices in relation to teaching load. Furthermore, there are even differences within divisions.

Finally, the Committee on Research would like to acknowledge all the hard work and wise counsel provided by our staff analysts, Kim Van Le and Matthew Mednick.

Respectfully Submitted;
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