

# The Future of Interdisciplinary Research at Berkeley: VCRO Group Study

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## EXECUTIVE SUMMARY

This report summarizes the work of the Faculty Leadership Academy (FLA) of 2022, which was asked to consider “How can the Office of the Vice Chancellor for Research (VCRO) better enable interdisciplinary research (IR) at UC Berkeley?” The FLA adopted a people-centered approach, which focused on understanding what researchers at UC Berkeley need to do interdisciplinary research, what challenges they face, and what opportunities exist here. We examined the VCRO itself, other interdisciplinary entities on campus outside the VCRO, other institutions’ VCRO-analogues, and the experiences at UC Berkeley of users of the VCRO through a series of interviews and a survey of UC researchers.

The FLA found fertile ground for IR at Berkeley. There is strong desire and interest in engaging in interdisciplinary research, and faculty are inspired and gratified by their excellent and exciting colleagues. They highly value the intellectual atmosphere and accomplishments of UC Berkeley. We also discovered numerous barriers to IR. We recommend that the VCRO approach its task by naming and identifying the barriers, real and perceived, that researchers face as a way of clarifying the actions it can take to enable IR to flourish on campus.

Challenges to IR that emerged repeatedly in our investigation include the need for time, resources, money, space, facilities, and quality administrative support; the issue of incentives or disincentives to conducting interdisciplinary research, related to merit, promotion, and uncertainty regarding consequences of an unsuccessful research project; the difficulty of connecting with other researchers outside one’s own discipline; past experiences of frustration and disappointment with the VCRO; faculty desires to pursue ground-up research as opposed to participating in top-down initiatives; and questions about the compatibility of the VCRO’s structure and highly administrative focus with the tasks of inspiring and initiating interdisciplinary research.

In the report, we articulate a range of recommendations grouped under five key themes:

- **Catalysis:** Help researchers find each other and make connections; offer training in skills that they will need; develop low-threshold team teaching as one way into interdisciplinary research
- **Funding:** Develop a seed fund program; set up fellowships for graduate students; help faculty connect with funding and outside support.
- **Incentives:** Ensure that merit and promotion reward interdisciplinary research; and help faculty to take risks by making explicit that those rewards are independent of the success of the research project.
- **Inclusion:** Take lessons from successful interdisciplinary work on campus that is involved with themes of social justice and inclusion.

- **Restructuring:** Consider alternatives to the current VCRO structure, e.g., forming a separate “Office for Multidivisional Projects” or “Office for Multi-disciplinary Projects.”

We hope that many of our recommendations will be useful to the VCRO and others on campus, but we wish to emphasize the following four key conclusions:

1. *The VCRO should experiment with different methods of connecting and convening researchers around key research themes, and then develop the approaches that are most successful, with a primary goal of sparking new ideas.*

The VCRO is already actively considering ways to do just this, but we have a number of specific suggestions articulated in the text that center around bringing researchers together in informal settings. This is a top priority as it falls clearly within the purview of the VCRO, can be done with a limited budget, and seems to hold significant promise to foster IR. This seems to be the lowest hanging fruit, but at the same time we recognize that fostering dynamic community is challenging and the VCRO will need to be creative, to experiment, and to consistently take stock of the success of its efforts in order to improve.

2. *The VCRO should improve the support available for grant proposal development and submission as well as post-grant project administration.*

Large-scale interdisciplinary research requires grant writing and, in the case of success, administration of the grant and the research it supports. Administrative support in these areas is widely perceived as lacking or suboptimal in quality. Faculty need to be freed from the support tasks (e.g., hiring, budget management, events coordination) in order to focus on innovation and connecting with others.

3. *The VCRO should advocate for expanded recognition of IR within the merit and promotion process. It should work with a task force to develop guidelines for IR evaluation.*

IR work is often judged at a discount relative to traditional disciplinary research. This gives researchers a disincentive to pursue IR, which already faces higher hurdles. If Berkeley wants to become a campus that elevates and encourages innovative IR, it must consider creating systematic incentives that give faculty a reason to choose IR pursuits. The VCRO is not in a position to rewrite merit and promotion rules or to change disciplinary norms, but it can become an advocate for attention to these systemic issues.

4. *Restructuring the VCRO could better shelter those tasked with fostering IR and research innovation from the other roles of the VCRO.*

The VCRO has many essential responsibilities. Its role as a visionary leader of IR on campus is easily overtaken by the need to manage issues around compliance, regulation, and administration. A restructuring of the VCRO could ensure that the visionary role for interdisciplinary research is not only protected but amplified. Given the immense administrative apparatus that is the VCRO, creating a dedicated office or entity with specific focus on developing IR on campus might prove fruitful.

## A. INTRODUCTION

The 21 members of the Faculty Leadership Academy (FLA) are grateful for the opportunity to develop our skills and values as leaders. Working together on this complex, semester-long project has been challenging and exciting. The experience has helped us to grow as future leaders; to develop a deeper understanding of UC Berkeley; and to form a supportive, cross-campus cohort. We thank the program sponsors, faculty advisers, program team, and facilitator for their support and for the effort and vision that went into creating the FLA. Their names are listed at the end of the report.

In this report, we respond to the question, “How can the VCRO best enable interdisciplinary research and collaboration at Berkeley?” While our recommendations may be the most valuable portion of this report for the purpose of campus leadership and the VCRO, for ourselves there was immense value in the process of developing and executing the project. The body of this report will focus on the following questions: What do people need to do excellent research, including interdisciplinary collaborative research? What challenges currently limit peoples’ abilities to do this kind of research? What are the opportunities for the VCRO to better enable this and how might the VCRO overcome the obstacles that they might face in implementing these strategies? The appendices provide more detail into several areas on which we focused, namely: the operations and structure of the VCRO; current interdisciplinary research on campus; other universities’ approaches to interdisciplinary research; and user experiences with the VCRO.

There are many stories to tell about research at UC Berkeley, and about interdisciplinary research. There are early-career faculty eager to define their individual niche and make a reputation for themselves in their own fields before joining a team. There are above-scale faculty who have illustrious research credentials and have the experience and desire to lead large-scale projects. There are faculty whose fields reward solo work, and who would not know how to develop a collaboration with far-flung disciplines, even if they dared risk their prospects for advancement. There are faculty who have sought to find funding for interdisciplinary work but were unsuccessful. There are faculty who already engage in valuable interdisciplinary research and have found their best interlocutors that way. While our FLA project entailed immersing ourselves in institutional structures and operations, incentives and administrative processes, we want to emphasize that people are the point of our project. Our project seeks to understand what people need to do research, period, and beyond that, what is required to engage in interdisciplinary research. Only beginning with these questions is it possible to explore how the operations of the VCRO can best enable people to do excellent interdisciplinary research. For that reason, we reformulate the question as follows: “How can the VCRO best *enable people* to engage in interdisciplinary research and collaboration at Berkeley?”

## **B. METHODOLOGY**

We used a mixed-methods approach to carry out the research presented in this report. The FLA cohort split into four groups to learn more about the VCRO and interdisciplinary and collaborative research, and each group used a slightly different methodology. The first group investigated the structure and operations of the VCRO via a series of conversations and interviews with a range of people including VCRO staff members and key stakeholders including Deans and Directors of ORUs. The second group explored how interdisciplinary research and collaboration is currently facilitated at UC Berkeley outside the VCRO. This was also done through conversations and interviews with a range of people, primarily faculty and staff members involved with different types of entities on campus such as centers, institutes, and initiatives. The third group carried out more focused interviews with a smaller number of individuals involved in running structures that are equivalent to the VCRO at other universities in order to explore how they facilitate collaborative interdisciplinary research. The fourth group carried out a large-scale user experience survey to gather quantitative and qualitative data about researchers' perspectives on interdisciplinary research and collaboration at UCB, as well as their experiences with the VCRO. The findings from all four groups were brought together and underpin this final report. More detailed information about the methodology and results for each of the four groups can be found in Appendices I-IV.

## **C. NEEDS**

Research is a complicated process that varies across disciplines. Nevertheless, there are some common threads, and naming them provides context.

To produce original research, faculty need new ideas, the means to execute on their ideas, and incentives to do so. To generate ideas, faculty need access to intellectual stimulation, which typically comes from some mix of peers, students, and interactions with both the greater academy and the real world.

To execute on the ideas that they have, faculty need resources. The resources required for research vary dramatically across domains—some need bespoke laboratory equipment; some use participant observation and interviews; others need the ability to launch trials or surveys with thousands of participants, whereas others rely solely on pencil and paper. No researcher, however, can do great work without time. Our investigation certainly surfaced concerns about material resources and funding, but time was often identified as the key limiting element.

Lastly, faculty need a reason to direct their scarce time and resources in one direction rather than another. A primary incentive is the joy of discovery, but faculty are not immune to the pressures of career advancement, both on campus and in the broader profession, or to the influence of

funding and pecuniary incentives. Research, especially interdisciplinary research, is risky and time-consuming, and faculty need additional incentives to take risks and to invest in collaborative work, which requires more set-up time, coordination, and a steep co-learning curve.

#### **D. WHAT WORKS WELL**

Our investigation turned up some key bright spots as they relate to interdisciplinary research, and research in general at Berkeley. First and foremost, Berkeley is an extraordinary place to do research because it is full of skilled and talented scholars—including faculty, staff and students—and because the intellectual life on campus is vibrant and stimulating. The survey was particularly clear on this front, with dozens of respondents citing these factors as core assets for conducting research on campus. Second, there is a high degree of ambient interest in interdisciplinary research. Nearly four out of five survey respondents said they were “very interested” or “somewhat interested” in pursuing interdisciplinary research, and 73% have been a part of an interdisciplinary collaboration on campus.

Our investigations of entities which successfully facilitate collaborative interdisciplinary research yielded useful insights that clustered around three main themes. First, events involving shared space, time, and food were characterized as vital catalysts for new interdisciplinary collaborations as well as for sustaining existing ones. Course relief was also deemed essential, insofar as it allows faculty to devote time to research that involves more risk than familiar, mono-disciplinary pathways, in which success is more clearly defined, more readily understood, and conventionally produced within a specific department. A second theme that emerged was the importance of centering diversity, equity, inclusion, belonging, and justice (DEIBJ) in interdisciplinary research, both by attending to these dimensions in large-scale research projects, when appropriate, and by supporting projects that inherently and explicitly promote these values. A third theme underscored the general desire to support collaborative and interdisciplinary work that cannot be done elsewhere, creating a context in which scholars could either “do fun, weird things,” take risks and experiment, or conduct research that may be undervalued elsewhere on campus and by traditional power structures. The fourth theme pointed to the importance of supporting research in areas where there is strong faculty interest; it was emphasized that collaborative projects that emerge organically from the bottom up tend to have a higher degree of internal motivation and group cohesion, which can lead to more sustained outcomes.

Alongside these common themes, a number of other successful approaches were highlighted. These included: (a) supporting creative work and projects involving the community, (b) building interdisciplinarity into the structure, e.g., by having co-directors from different divisions, and (c) recognizing the value of small-scale, short-term projects.

## E. CHALLENGES

Berkeley has many key assets essential for IR and there are a number of success stories. At the same time, our investigation highlighted significant roadblocks to ambitious interdisciplinary research. Thirty-seven percent of survey respondents indicated that they had been part of a thwarted attempt to conduct IR, where a seemingly good idea had run aground at some point in the process. When asked to compare Berkeley to other elite research universities as a place to do IR, nearly three times as many faculty said it was worse than said it was better than most other places.

Our investigation highlighted a number of challenges that make IR difficult on campus, which we have put into three main categories: *time*, *connections*, and *support*.

First, all research requires research time and energy, but cross-disciplinary IR often requires even more of these fundamental human inputs because it requires that researchers with different disciplinary backgrounds and intellectual field cultures learn to work together. Berkeley faculty feel acute time pressure. Many faculty are already operating at a maximum capacity to complete their teaching and service obligations and to maintain more traditional disciplinary research agendas. In this context, launching a new IR initiative necessarily comes at the expense of some other activity, and many faculty report simply not having the bandwidth to pursue these opportunities.

Second, in some cases, faculty interested in IR initiatives also cite a lack of opportunities to make connections with other researchers. One root cause of the lack of connection is the simple fact that campus is large, disciplines are siloed, and many people have little occasion to make cross-disciplinary connections with other researchers as a matter of routine. This challenge is not specific to Berkeley, but time and resource constraints that are particularly acute at Berkeley do exacerbate this challenge. In particular, on a campus where faculty feel background time pressure, fewer people take the extra time to attend a talk, a seminar, a networking event, or even a college or school-wide holiday party where they might meet potential collaborators.

Third, our investigation indicated that faculty feel they lack adequate support to develop and sustain IR initiatives. There are several variations on this theme. One pertains to resources needed to nurture a new idea to the stage at which it could garner external funding. Sometimes this is a lack of financial resources, but it is also a lack of time. A second variation relates to support for putting together documents, budgets and other proposal materials. Some faculty perceive that these sorts of resources are more abundant at peer institutions, and there is considerable ongoing frustration with the quality and administrative structure of research support on campus. A third version is growing concern over core research infrastructure, especially staff support to help maintain research operations, which is atrophying in many places.



We asked faculty to rate the quality of a number of resources on a scale of excellent, good, average, poor, unsure or not applicable. The answers reveal a base level of frustration that should concern administrators. Fifty-two percent of respondents rated grant writing support as poor (versus 12% who rated it good or excellent). Fifty-seven percent rated seed funding as poor (versus 7% who rated it good or excellent). Forty-one percent rated support in finding funding opportunities as poor (versus 14% who rated it good or excellent). Of particular concern for IR, 63% reported that support for finding collaborators outside of one's own discipline was poor (versus 4% who rated it good or excellent).

In sum, our investigation paints a picture that was already familiar to many of us. Berkeley is full of creative scholars eager to engage, but many feel that they lack the resources they need in order to execute on their ideas. They perceive (rightly or wrongly) that peer institutions provide better support. They feel stretched overly thin by non-research responsibilities, and there is concern about the stability of core research infrastructure.

## F. OPPORTUNITIES

This section focuses on the opportunities for improving IR at UC Berkeley. We present a series of recommendations grouped around five key themes: catalysis, support, incentives, inclusion, restructuring.

### I. Catalysis

The VCRO can accelerate IR by ensuring the conditions necessary for IR exist. Along these lines, our team arrived at three recommendations under the umbrella theme of *catalysis*.

**Recommendation 1:** The VCRO should experiment with different methods of *connecting* and *convening* researchers around key research themes, and then develop the approaches that are most successful, with a primary goal of sparking new ideas. Examples include the following.

- Informal, community-building events that bring faculty together, incentivize participation, promote grassroots efforts, and spark novel interdisciplinary initiatives.
  - Regular lunches (paid for by the VCRO) at the Faculty Club around topical themes.
  - Late-afternoon interdisciplinary happy hour (or a cooking class, or wine tasting) with weekly research themes hosted by a facilitator who can maximize interactions between participants.
  - Campus-wide meet and greets for researchers engaged and interested in interdisciplinary research or team teaching.

Against a backdrop of time stress, it is critical to think about making events easy and accessible (e.g., family friendly events, or provide childcare in the evening), as well as making them fun (free food was spontaneously mentioned many times over as a critical draw) and valuable. There is a latent demand for opportunities to get together, so well-conceived events could be impactful without costing a great deal.

The emphasis should be on simply getting researchers into a situation where they meet new colleagues. It may be important to have ice breakers, or some activities that force interaction (e.g., a rotating wine tasting where you are assigned a new small group for each pour). An industry exists for designing and hosting such events, so the VCRO could contract with a provider to design and execute.

We encourage the VCRO to be creative, to experiment and to gather feedback/assess the success of different approaches based upon metrics of success that are established beforehand.

- Sponsor training programs around specific skills and challenges for researchers interested in IR, e.g., how to develop an IR project that meaningfully integrates interdisciplinarity, what challenges to expect, what possible partners (faculty, community orgs, campus orgs) to engage, and how to prepare for large grants submission. People who have conducted successful IR projects could serve as facilitators.
- Develop a more comprehensive webpage that elevates IR at Berkeley and helps foster and promote IR, which would indicate:
  - The kinds of IR research that currently exist on campus and the contact information of those involved.
  - A step-by-step guide on how to initiate new IR projects along with the types of resources available through the VCRO.

**Recommendation 2:** The VCRO should strategically deploy resources that bridge the gap between initial idea and full-scale development, including the acquisition of external funding.

The VCRO already does this, but we have suggestions as to how these efforts might evolve, including:

- Develop a seed fund program for IR groups involving faculty. Eligibility criteria (e.g., must involve researchers from at least 3 different units/departments, or 2 different colleges). Seed funds would focus on the beginning and middle stages of IR development, with later stages to be funded externally. Survey results indicated that seed funds need to be on the order of \$10,000 - 50,000 to serve this role, depending on the scope and scale of the project and the number of team members involved.

- Establish competitive campus-level fellowships for graduate students who engage in interdisciplinary research either as part of their main dissertation research or in addition to their more monodisciplinary dissertation project.
- Apart from supporting its own projects and the faculty who work on them, the VCRO should maintain an up-to-date database of funding agencies and links to their current research priorities and deadlines. It should send out a semesterly digest that announces upcoming opportunities at least six months before they are due.
- Consider the design structure and allocation of physical spaces with the explicit intention of maximizing the kinds of interactions that can facilitate and sustain interdisciplinary research. Also, creating an IR incubation hub that provides temporary “residency” for IR teams to focus on research development can help strengthen faculty connections and enhance the ideas-incubation process. It also demonstrates the university’s commitment to IR.

**Recommendation 3:** Encourage team-teaching across disciplines and look to team-teaching as a source of IR initiatives.

Truly innovative IR requires deep connections between researchers who often come from disciplines with different cultures, norms, languages, and practices. One way of establishing deep ties that bridge such differences is team-teaching. The VCRO, of course, does not hand out teaching assignments or determine how departments reward team teaching, but they can:

- Leverage existing team-teaching programs to promote and advance IR development. Examples include but are not limited to Big Ideas courses and Compass Courses within the Arts and Humanities. The VCRO could provide funding support to interdisciplinary sets of faculty interested in team-teaching as a means to develop or advance an IR initiative.
- Explore possibilities to launch new team-teaching associated with IR initiatives. One approach is to use Freshman and Sophomore Seminars as a medium for IR exploration with low stakes.

**Recommendation 4:** The VCRO should work with the Graduate Division to explore whether it would be advantageous and feasible to allow graduate students and post-doctoral researchers to apply for affiliations with other departments.

- Affiliate status would help break down perceived barriers for the affected graduate students and post-doctoral researchers and would encourage interdisciplinary collaboration.
- These would be 0% affiliations analogous to faculty who have 0% non-voting affiliations with other departments.

- Graduate students and postdoctoral students would only be eligible to make their application after their first year on campus.

## II. Support

The VCRO can facilitate IR on campus by improving and diversifying the support that is available to people who are interested in or are already engaged in IR. We make four related recommendations.

**Recommendation 5:** The VCRO should improve the support available for the different stages of grant proposal development. Depending on the needs of the research team, it can include strategizing sources of funding, assisting with the writing process, providing iterative feedback on drafts, and generally filling in where faculty need assistance.

Improvements in support can lower the cost of submitting grants and improve the chances of success. This would simultaneously enhance ideas development (by providing feedback based on grant priorities and alignment) and improve the productivity of ongoing projects (which currently spend too much of their time applying for future funding instead of doing the intended work).

- We recommend a workgroup to investigate into the areas of support lacking in IR grant proposal development: what kinds of support are needed, and how we can address those needs with current or new resources?
- To best promote IR, the VCRO should consider hiring or contracting professional grant writers and designated point people in Shared Services who specialize in interdisciplinary grant writing and submission.

**Recommendation 6:** The VCRO should provide, or facilitate the provision of, more shared staffing for administrative duties to a wider range of entities. Some researchers who have received campus and external funding for IR projects find it challenging to sustain without some staffing support. Most initiatives and ongoing projects need only a part-time staff person, so it would be helpful for them to share and contribute toward a full-time staff to create sustainability.

Staffing is the most expensive resource on campus and many IR initiatives do not have the kind of funding required to support staffing on their own. This is especially true of IR projects involving the Social Sciences and the Arts and Humanities which typically bring in less money.

- The VCRO should explore how to offer more shared staffing so that entities with smaller grants are able to draw on administrative support.
- One possibility is creating a pool of specialist support staff in HR, budget, billing, support coordination, etc. who would work with a range of different IR entities.

- Another possibility is to place projects in thematically related ORUs that have staff and expertise to support these initiatives.

**Recommendation 7:** The VCRO should help increase external funding support for IR from a variety of sources. Attracting financial support from private donors, companies, and foundations is more successful when faculty are represented by a supportive campus VCRO or development office.

- The VCRO should have dedicated support from the development office to actively fundraise for IR
- The VCRO and the Development Office should explore how existing connections with donors, foundations, and companies could be drawn on to support IR specifically

Our investigation makes clear that there is a base level of dissatisfaction with research support and a perception that UC Berkeley lags peer institutions in such support, especially for grant writing and the identification of funding opportunities. Many remain frustrated by the service model (which echoes the “Campus Shared Services” initiative that produced widespread frustration), and there is a perception that budgetary pressures have led support staff to be overstretched. The VCRO cannot address these issues unilaterally, but we suspect that there is a strong case to be made to campus that improved administrative support could easily pay for itself in terms of additional external funding if that support is correctly targeted to overcome the biggest barriers to research development.

### III. Incentives

The VCRO can facilitate IR on campus by ensuring that there are valuable incentives to take part in IR. Incentivization is particularly important in the case of IR because it naturally takes more time, involves greater risk, and often garners less recognition than traditional disciplinary research. We make two related recommendations. Improvements in support addressed above also help address incentives.

**Recommendation 8:** The VCRO should advocate for expanded recognition of IR within the merit and promotion process as well as within departments.

- Recognition of IR within the merit and promotion process can be modeled along the process that led to the inclusion of criteria for community engaged research.
- The VCRO should work with the senate to convene a task force to develop potential guidelines for assessing IR in merit and promotions. Such a task force can learn from other institutions. Georgia Tech and Rutgers both emerged from this study as valuable models in this respect.

- We recommend the task force to consider ways in which failed IR initiatives—ambitious ideas that ultimately did not bear the expected fruit—could be recognized as a way of de-risking IR pursuits.
- Given guidelines, we recommend that the Vice Provost for Faculty work with the Budget Committee, deans, and department chairs to clarify policy and ensure that interdisciplinary research is validated, accepted, and welcomed. In such policy clarifications, it will be important to acknowledge the obstacles to accepting collaborative work, and to find specific ways to work through these impasses at the departmental and campus levels.
- As an interim measure, department chairs could ask faculty to flag any IR and collaborative research in which they are involved in the materials they submit for merit and promotion cases.

**Recommendation 9:** The VCRO should explore how the current structure and framework of resource allocation for FTEs, block grants, etc. leads to departmental and divisional competition that not only discourages but also prevents cross-disciplinary research development.

- We recommend creating a more cohesive system where cultural and operational differences and inequities are reduced and where units do not feel threatened by one another. The goal would be to build a culture in which IR is incentivized, and different units advocate for one another instead of competing for resources in a zero-sum atmosphere.

**Recommendation 10:** The VCRO should create a new UCB Interdisciplinary Research Project of the Year prize to incentivize IR and increase its prominence on campus.

- We recommend that such a prize take account of DEIBJ contributions as part of its criteria and that it be open to IR projects of all scales.

**Recommendation 11:** The VCRO should develop metrics and methods to measure how effective programs are at fostering innovative IR and use these to improve.

To judge itself and the units it supports, the VCRO needs to establish a set of metrics for IR that can be used to routinely evaluate itself and the initiatives on campus. It would be especially useful to measure how successful the ORUs are in this domain. Metrics could include but are not limited to:

- Faculty satisfaction, % of faculty who participate in IR, retention of faculty in IR programs
- % of graduate students mentored across departments

- New IR projects started
- New IR funding
- Impact: new products with societal impact, new IP, interdisciplinary publications, visibility,
- Success stories/case studies to raise the profile of the university externally

One interpretation is that the VCRO could publish an annual report on IR that creates a document of record. This fosters accountability and transparency.

#### IV. Inclusion

The VCRO should center inclusion as it works to improve IR at UC Berkeley.

Issues around inclusion arose in several distinct ways during our investigation, and we have three corresponding recommendations.

**Recommendation 12:** The VCRO should adopt and promote a broad-spectrum definition of interdisciplinarity.

Our investigation suggested that many actors privilege large, cross-divisional IR initiatives, whereas we believe much of the great innovation comes from IR that takes different forms. Taking this broader view would bring some existing collaborations, which are under-resourced, into the VCRO's line of sight.

- The VCRO should not limit the scope of IR to multidivisional collaborative projects. It is also important to facilitate collaboration between proximal disciplines which is considered important on the ground. Examples might include Biology and Chemistry, or French and Philosophy.
- As it looks to improve IR at Berkeley, the VCRO should also adopt a multi-scalar definition so that efforts are not solely concentrated on large-scale long-term collaborations. Smaller-scale shorter-term projects are also important and can be the necessary building blocks for larger projects.

**Recommendation 13:** The VCRO should ensure that the arts, humanities, and social sciences are given full attention in their efforts to promote IR at Berkeley.

- This would mean that STEM fields are not de facto prioritized.
- Creating funding opportunities for those in the arts, humanities, and social sciences to lead IR projects will encourage faculty in these divisions to build inter-disciplinary connections and develop cross-disciplinary and cross-divisional IR projects.

- This would also help address the awareness gap that we encountered even within our own FLA cohort: Scholars in these fields can have long successful careers at Berkeley without knowing that the VCRO exists!

**Recommendation 14:** The VCRO should ensure that the goals and values of DEIBJ are embedded and emphasized in supported IR projects.

One of the main reasons for promoting IR on campus is that opening up STEM projects to humanistic and social scientific perspectives can lead to an increased focus on and understanding of DEIBJ. Our investigation suggested that one of the things that predicted successful collaborations on campus, including many that fall outside the VCRO’s current definition and live apart from the VCRO currently, was an inclusive culture and a centering of DEIBJ issues. This suggests that an emphasis on these issues could be productive. There are numerous ways of doing this:

- Encourage multi-divisional IR collaborations that integrally involve the humanities and social sciences. This can be done through showcasing successful work of this type as well as through seed funding competitions.
- Offer seed funding for specific areas of concern relating to DEIBJ. An example of a specific theme to start with is anti-racism research.
- This work on DEIBJ needs to be done with particular care. It is not enough to just have the occasional DEIBJ-related call; the values of DEIBJ can and should be integrated throughout IR.
- The VCRO can facilitate this by providing broad access to staff with specific knowledge or connections. For example, the VCRO might provide staff skilled at connecting IR collaborations with HBCUs or community partners.

## V. Restructuring

The VCRO’s attempt to foster IR, and to spur new research more generally, may be better served by a different administrative structure.

The VCRO has many responsibilities, and the bulk of the staff and budget goes to research administration and compliance and to its role in overseeing ORUs. Our investigation suggested that these all-important tasks often soak up the bandwidth of leaders, who often constantly confronted with time-sensitive concerns. While there are surely some synergies between these “management” roles and the “innovation” roles that are the focus of this report, our investigation suggested that the VCRO should carefully consider what reforms, big or small, might ensure that IR has the people, resources, and status that it needs to flourish on campus.



**Recommendation 15:** The VCRO should be restructured to better shelter those tasked with fostering IR and research innovation from the other roles of the VCRO.

- Consider moving the compliance, oversight, and administration functions to the VCA office. While this would be a big change, it would bring our VCRO into alignment with VCROs elsewhere that have successfully integrated interdisciplinary research.
- Conversely, consider creating a new Associate Vice Chancellor position tasked solely with sparking, coordinating, and supporting new research, including IR.
- A less radical possibility is to restructure the VCRO's office so as to ensure that those tasked with envisioning and fostering innovative IR are sheltered from the demands of the administrative work of the VCRO. This might involve a separation of AVC roles, with one focused on administrative management and the other on IR innovation. The latter might resemble the position of Innovation and Entrepreneurship in the present VCRO org chart.

**Recommendation 16:** The VCRO and campus should rethink the management of ORUs and campus core facilities more broadly.

Our investigation turned up a number of questions and concerns about ORUs more generally. There is general perception that ORUs need to have an active agenda with a forward-looking, strategic vision, whereas most ORUs are treated according to a historical legacy that is typically renewed in perpetuity without an effective process of assessment and guidelines for renewal or shuttering. Attention to the strategic role of ORUs would serve the interest of IR both by improving the operation of the ORUs, which are an important source of IR, and by potentially streamlining or reducing the role of the VCRO in overseeing ORUs so as to free up VCRO bandwidth. Generally, there is a perception that, while many ORUs are themselves successful hubs of IR, the VCRO does not maximize their potential in this regard.

- The VCRO should convene a task force to examine the current status of the ORUs, develop a process and guidelines for assessing ORUs, and explore how to use them to support and promote IR on campus.
- Possible directions for the task force to explore include:
  - Creating a 'grand plan' for ORUs including how they are created, how long they are expected to persist, and how they are held accountable (e.g., regular assessments along the lines of departmental APRs).
  - Reimagining ORUs as hubs of interdisciplinary research that function orthogonally to engage students and researchers across all academic units. Existing staff and expertise already in the ORUs could be asked to identify funding opportunities and support pre- and post-award functions.

- Promoting existing ORUs, UC Berkeley core facilities, and Research Infrastructure Commons (RIC) as hubs of interdisciplinary research through their websites and meet-and-greets.

## **APPENDICES**

Our guiding question gave rise to different lines of investigation. These appendices summarize findings on the VCRO structure and operations (Appendix I); existing interdisciplinary research and collaboration at UCB (Appendix II); interdisciplinary collaboration and VCRO-equivalents at other institutions (Appendix III); and VCRO user experience (Appendix IV). While the report concentrates on four primary recommendation areas developed by the FLA, each appendix includes additional recommendations that were formulated by subgroups within FLA. These additional recommendations may be unrelated or only indirectly related to our primary recommendations, and some echo the primary recommendations, or the recommendations listed in other appendices.

## Appendix I: VCRO structure and operations

In order to understand how our VCRO can best enable people to engage in interdisciplinary research, we studied the VCRO itself, i.e., its overall organization and operations, with particular focus on the ORUs it administers, which are largely interdisciplinary. We also considered the compliance apparatus, the entrepreneurship branch, and the structure of the VCRO as a whole. The disciplinary diversity of the FLA group was of great advantage in developing a multifaceted and nuanced perspective on the VCRO structure and its operations.

Here we lay out observations regarding the operations and structure of the VCRO. To develop these observations, we conducted interviews and engaged in conversation with directors of a range of ORUs, including STEM, Social Sciences, Humanities, and Area Studies, of both large and small sizes; one director of a museum that reports to the VCRO; one former field station director; L&S Deans; and the Vice Chancellor for Administration.

Across our interviews, the operations of the VCRO were described as overwhelmingly focused on research administration. Of note, our conversations indicated that the VCRO sees *itself* as mostly engaged in research administration in its current form. VCRO's core regulatory branches (EHS, OLAC, SPO, visitors) serve both strictly disciplinary and interdisciplinary research; and the VCRO is substantially more involved with disciplines that require its regulatory apparatus (i.e., STEM disciplines).

We also noticed a certain heterogeneity in the operations and aspirations of the VCRO. The VCRO serves as a “dean” for a huge range of ORUs, field stations, and museums; and it seeks to drive large, multidivisional research collaborations. The VCRO does not see its core task as directly supporting small or mid-size research projects; or research that happens within departments, divisions, and colleges. These kinds of research are mainly developed in a bottom-up fashion according to faculty interest and, where relevant, success in receiving grants.

One specific line of inquiry emerged in response to interviews with VCRO staff. It became clear that the VCRO seeks to promote a specific kind of interdisciplinary research, i.e., what in this report will be called “multidivisional” research. Multidivisional research brings together people from multiple divisions who are not necessarily disciplinary “neighbors” or obvious research collaborators. We were given such examples of multidivisional research themes as climate change and social justice, which have the potential to attract federal or state grants. To be clear, all multidivisional research is interdisciplinary, but not all interdisciplinary research is multidivisional. Given the interest in VCRO's capacity to enable multidivisional research of the sort that attracts large federal and state grants, and on the topics that were mentioned to us, our interviews, conversations, and survey included questions on how the VCRO could best enable

multidivisional research and collaboration regarding projects that would attract large federal/state grants.

The VCRO sees itself as having an overview of research on campus, and thus as being in the position to initiate and drive large multi-divisional research. It seeks to connect researchers across campus who would otherwise not find each other, for instance in the Environmental Humanities initiative. Our investigations, however, raised questions concerning how compatible tasks of “initiating” or “driving” large-scale research are with the current, overwhelmingly administrative, operations of the VCRO. Some researchers opined that VCRO initiatives may meet resistance and lack of buy-in owing to experiences of unresponsiveness from the VCRO. The VCRO is perceived as too burdened with oversight and administrative responsibilities to attract researcher enthusiasm for new initiatives.

On a separate note, the VCRO houses ORUs, most of whose research is highly interdisciplinary. ORU benefits include: 1) recognition and potential funding from the VCRO and 2) having access to one of the five Berkeley Regional Services [i.e., ERSO, BEST, SHARE, ProS and BEARS] for administrative support and grant proposal development from the VCRO. Thus, interdisciplinary research initiatives are incentivized to become and persist as an ORU. However, some ORUs are not yet assigned to a service region and are falling between the cracks in terms of support. In addition, there does not appear to be a ‘master strategy’ with respect to how ORUs are created, how long they are expected to persist, how they are held accountable.

In our discussions with various research units under the supervision of the VCRO, units rated the financial and administrative support they receive from the VCRO as neutral or moderate; in some cases, unit directors were dissatisfied. Most interviewees reported that they receive little to no fundraising or administrative support from the VCRO. In some cases, the VCRO has been called upon to handle duties that it is not properly equipped to handle (e.g., real estate ventures; repatriation of Native American remains), simply because the VCRO is responsible for the ORUs that are faced with these concerns. The name “VCRO” suggests that this office provides support for all of campus research at all levels; but many of its own units, and other campus units that are not part of VCRO, do not perceive themselves as having the support and interest of the VCRO. The VCRO was described by some units as “bureaucratic” and “not supportive.” Others did not find the VCRO to be an obstacle, but also did not see why they were housed within the VCRO and believed that they could operate just as well under another structure, for instance, within a division under decanal leadership. Interviewees noted that many similar research entities on campus (other museums, other research centers) do not report to the VCRO, and thus the structures devoted to existing interdisciplinary research are inconsistent.

Recommendations based on study of the structure and operations of the VCRO and its relationship to UCB campus structure:

1. Assess the current status of ORUs and develop a process for regular assessment and guidelines for their renewal or shuttering.
2. **Transfer supervision of some ORUs to College level and link them to their respective Berkeley Regional Services for support.** Retain within the VCRO the ORUs that are too large or too interdisciplinary to be housed within one College. Reassess whether ORUs should remain under the support of the VCRO. [ORU policies](#) around rotating directorships may need stronger enforcement.
3. **Transform UC Berkeley [core facilities](#) and [Research Infrastructure Commons \(RIC\)](#) into hubs of interdisciplinary research,** and make their existence and functions more widely known and accessible.
4. Instead of creating new ORUs, **support interdisciplinary initiatives** by allowing interested parties to:
  - a. apply for seed grants from the VCRO
  - b. reserve meeting space, especially for external invitees
  - c. receive temporary administrative support from one of the Service Regions for proposal submission and HR needs
5. **Promote creative, grassroots efforts to bring people together.** For example, facilitated, informal, community-building ‘happy hours’ centered on broad questions may yield novel interdisciplinary initiatives. Invite FLA members to act as potential facilitators.
6. **Provide professional facilitation** of large teams developing interdisciplinary grants. Timely efforts to submit proposals due to lack of effective project management.
7. **Expand philanthropic fundraising** by strengthening links with UDAR to help mobilize philanthropy for interdisciplinary research and/or by growing fundraising staff within VCRO.

## **Appendix II: Existing interdisciplinary research and collaboration at UCB**

In order to develop further insights into how best to enable interdisciplinary research at UCB, we studied how people engage in interdisciplinary research and collaboration in numerous different constellations and at different levels at the university, e.g. The Center for Interdisciplinary Critical Inquiry in the Arts and Humanities Division; the Energy and Biosciences Institute that reports to the VCRO. Interdisciplinary research and collaboration happen among colleagues whose disciplinary “distance” from each other may range from “rather close” (e.g., English and French; Biology and Chemistry) to “rather far” (Critical Theory and the School of Education, Public Health and Media Studies). We chose to examine existing interdisciplinary research contexts in order to see what exists at UCB, what works well, and where there are opportunities. Specifically, we considered ORUs (part of VCRO) and non-ORU entities outside of the VCRO [e.g., Social Science Matrix, Future Histories]).

In order to learn more about interdisciplinary research and collaboration on campus, we interviewed seven interdisciplinary research entities at UCB that operate outside of the VCRO. We identify below some observations as well as the mechanisms through which these organizations provide important venues for interdisciplinary research and collaboration on campus.

We discovered some confusion about the purview of the VCRO among the seven interdisciplinary research collaborations with which we spoke. More than one of those entities were unsure or unaware about past ties with the VCRO. Other entities expressed interest in support from the VCRO, but could not identify what its specific operations are, nor what it could contribute. Both of these anecdotes reflect areas of opportunity with regard to communication and self-presentation of the VCRO.

We also noted that these entities foster impressive and creative interdisciplinary work, and yet have been unsuccessful in obtaining the types of institutional support that they felt the VCRO could provide (or did and no longer provide). This is clearly an important area for the VCRO given that many of these entities advance research devoted to DEIBJ-related matters, with respect both to their topics and the scholars they attract. Their research projects fall within or across the humanities, social sciences, engineering and physical sciences, and their projects and products include courses, community resources, and artistic performances. There was a sense, among the entities that we interviewed, that the criteria for securing long-term VCRO support of these units could be made clearer, and that the early evolution of these entities would be considerably assisted if VCRO could provide (along with the seed funding it already offers) access to staff for administrative tasks such as fundraising, reimbursement, and grants management. Even without directly subsidizing such staffing positions, the VCRO would be in a good position to facilitate pooling of such roles between multiple small units. Frustration was

expressed that, in the absence of staff to fill such roles, the duties were often tasked to higher-paid staff, leading to economic inefficiencies.

Recommendations based on study of interdisciplinary research at UCB outside the purview of the VCRO:

1. **Take lessons from DEIBJ-oriented research collaborations:** There is much that VCRO can learn about DEIBJ in interdisciplinary collaborations from the interdisciplinary collaboration that occurs outside the VCRO. Equity is a key element in many research collaborations at UCB, and these entities do an admirable job connecting equity from the level of society at large to the level of interdisciplinary collaboration. Some insights include that zero-sum games for resources tend to thwart the collaborative spirit, encouraging rent-seeking landlord behavior from larger ORUs and competitions between client units; and that certain dysfunctional patterns of social interaction between faculty/departments from different disciplines are both predictable and hence treatable. Several of the entities we studied centered DEIBJ from the start, and it formed a guiding principle throughout the collaborations.
2. **Create social gathering opportunities:** A particular “low hanging fruit” recommendation echoed by several of our interviewees was the need for regular pretexts for faculty from different disciplines to get together, ideally over (subsidized) food and drink, in order to get to know each other and to build the informal networking connections that foster interdisciplinarity. One faculty member was quoted as saying that this was more effective as a tactic for seeding IR and fundraising than any other.
3. **Share and improve staffing resources:** We heard repeated requests for shared staffing positions. Smaller units often have funds to hire only an executive director, who then handles administrative tasks that would be more efficiently and cost-effectively handled by a staff position. Other units petition for staffing support from participating departments, which can lead to conflict. Create a centrally coordinated marketplace to which smaller units could turn for partial support (e.g., 20%, 25%, 33%) of administrative positions such as HR, fundraising/development, grant writing, event organization, and grants management. Larger grant-centered departments already have access to these functions.
4. **Create transparency around ORUs:** While there are published criteria for establishment and closure of ORUs in the VCRO’s policy guidelines, in practice there is an unwritten set of rules. Creation of new ORUs seems to be frozen, shuttering of existing ORUs is opaque, and interdisciplinary organizations seem confused about the process for establishing a secure line of guaranteed funding from the VCRO. It would be helpful, and might reduce resentments, if the criteria for establishing and disestablishing ORUs were more transparent. Better guidance is needed as to the type and size of interdisciplinary collaborations that the VCRO is willing to support.



### **Appendix III: Interdisciplinary collaboration and VCRO-equivalents at other institutions**

In order to broaden our approaches to the question, and to find inspiration for our recommendations, we studied interdisciplinary and multidivisional research projects at other institutions. We explored how other universities enable people to engage in interdisciplinary research and collaboration, looking at other UCs, and other large research universities, both public and private. In addition, we studied how their VCRO-equivalents operate, including cases in which tasks that are currently within the purview of the VCRO at UCB are distributed across other organizational structures, as well as more innovative models that provide faculty open access to a variety of interdisciplinary research-themed institutes so they can connect and grow interdisciplinary efforts of common interest and benefit from the availability of shared resources and core facilities.

In order to explore other institutions' VCRO-equivalents and related structures, we interviewed the following individuals: VCR Benedetto Piccoli, Rutgers University-Camden; VPR Max Shen, University of Hong Kong (HKU); VCR Harold Collard, UCSF; AVPR Nicholas Wigginton & Prof. Mark Schlissel, former President, University of Michigan; Theresa Maldonado, Vice President for Research and Innovation, UCOP; and Julia Kubanek, Vice President for Interdisciplinary Research, Georgia Tech.

These interviews yielded practicable examples of innovative approaches to promoting interdisciplinary research. Like UCB's VCRO, some institutions award seed funding to groups of faculty from different units to launch interdisciplinary collaborations. However, many that we interviewed also facilitate networking among faculty in order to initiate new interdisciplinary collaborations. For example, U of Michigan's VCR sponsors "dialogue sessions" that bring together deans and faculty to discuss research challenges and opportunities. UCSF hosts the [Team Science Program](#) to foster cross-discipline collaborations that promote innovative approaches and different ways of thinking about areas of collective interest. The programs sponsor team-building events such as symposia to kick-off broad areas, as well as smaller "collaboratory meetups" that bring together faculty with diverse expertise but common interest to deliver lightning talks, provide networking time, and strategize next steps to build and sustain the team focus by offering seed funding for proposals resulting from events.

Other institutions also provide administrative support that enables interdisciplinary collaborations to secure outside funding: Rutgers-Camden and U of Michigan have dedicated personnel for large-grant writing support and grant management. Georgia Tech provides an administrative team, consisting of five full-time staff, to facilitate large interdisciplinary projects, including support for pre-award and organizing team events. Georgia Tech also has an Office of Federal Relations that maintains strong connections with federal funding agencies to identify government research priorities, keep informed of upcoming competitions on issues relevant to

their research mission, and help faculty connect with stakeholders, community organizations, and private entities that align with interdisciplinary projects.

Finally, several institutions incentivize and reward faculty participation in interdisciplinary collaboration. For example, HKU sets aside and furnishes a large new space for collaborative research, with endowed chair positions given to those leading the efforts, and Rutgers revised its faculty promotion guidelines to reward involvement in interdisciplinary collaborations. U of Michigan provides teaching and service relief for interdisciplinary research and created Presidential awards for collaboration and public celebrations in order to reward interdisciplinary research. Georgia Tech provides open access to core facilities for any faculty interested in joining one of their 10 Interdisciplinary Research Institutes.

In studying these examples, we observed the following, which are relevant to the question “How can the VCRO best enable interdisciplinary research at UCB?”: Many interdisciplinary collaborations lasted longer than the initial seed-funding period; their faculty produced joint publications and reports across units; faculty co-mentored graduate students across units; publicity & public awareness of the resulting research increased communication with stakeholders improved; connections with key external partners (e.g., HBCUs, national labs) deepened and needs were addressed; projects received external grants and successfully competed for federal research dollars to support large interdisciplinary opportunities in areas of significant public interest; the spirit of collaboration increased a sense of community and belonging while promoting the retention of excellent faculty.

Recommendations drawn from the study of VCRO-equivalents and interdisciplinary research at other institutions:

1. **Call out and develop initiatives around things researchers care about.** The most successful approaches implemented at other institutions started as grassroots efforts to understand and fund research issues that are important to the faculty. Create regular networking opportunities for faculty across units to meet and find common areas of interest.
  - a. Create a web portal for faculty across campus to share and view interdisciplinary research ideas and express potential interest in collaborating
  - b. Dedicate administrative support to identify areas of common interest, curate lists of potential champions to lead interdisciplinary teams, host working lunches to support teams, and strategize events and opportunities to grow key initiatives
  - c. Promote interdisciplinary cluster hires across different units that come together to tackle key issues
  - d. Create “triad” seed funding opportunities, e.g., every faculty member is given a \$5,000-20,000 token, but they can only be cashed in if three researchers from at

least three different campus units come together and submit a short, interdisciplinary, innovative proposal

- e. Provide seed funding that is earmarked for anti-racism research to promote projects that address key issues related to DEIBJ.
2. **Provide resources to support team science.** Funds and staff support will incentivize inter- cross- and multi-disciplinary approaches that catalyze larger research enterprises and win broad recognition; this is good for institutions and individuals.
- a. Provide support for the intermediate stage (between seed funding and federal funding) of the most promising interdisciplinary collaborations to increase long term success.
  - b. Have personnel (or funds to hire consultants) dedicated to providing grant management and writing help for successful seed-funded interdisciplinary collaboration teams.
  - c. Employ experts in DEIB to consult on grant writing; this is especially helpful for grants that require sections on “broader impacts” of the proposed research
  - d. Work with development to create a kickstarter-like website to attract donations for interdisciplinary research teams started with seed funds.
3. **Address structural issues to prioritize and facilitate team research:**
- a. Incentivize interdisciplinary research by redefining what it means to be a successful faculty member. Move away from independent faculty-centric models that prioritize independent research
  - b. Encourage the Academic Senate and Budget Committee to develop guidelines regarding the evaluation of research that rewards interdisciplinary collaborations in merit and promotions. Policies for the review of teaching, mentoring and service are posted, but there are no public guidelines for evaluating research. <https://academic-senate.berkeley.edu/committees/bir>
  - c. Simplify and streamline administrative structures: move regional research management offices (e.g., ERSO) below VCRO; at present most of these are overseen by the VCAO
  - d. Separate VCRO’s research-initiating and -driving function from its research-management function.
  - e. Establish a new research unit with administrative support that is specifically dedicated to growing interdisciplinary research at UCB in areas that attract a broad group of faculty interest

## **Appendix IV: Researcher experiences at UCB and the role of the VCRO**

### **I. General observations**

It is instructive to note that our own FLA cohort was somewhat surprised to discover that the VCRO sees itself as responsible for driving interdisciplinary research that falls under no other campus entity's purview. The members of the FLA cohort who had knowledge of and experience with the VCRO understood it as filling a management and compliance role with respect to already-existing research activities on campus. These FLA members' experience with the VCRO involved proposals, regulations, and facilities, rather than driving or promoting research.

FLA members discussed the recent "signature initiatives" that were generated by the VCRO. Although the themes came from the Academic Senate, faculty were recruited in a top-down process by the VCRO. These initiatives yielded disappointing results with fundraising and faculty satisfaction. Some FLA members offered the reflection that most researchers do not develop research in the way envisioned by the VCRO. Instead, research projects are generated internally, based on what motivates faculty; that ability to determine one's own research topics is one reason that researchers join and remain in their professions. This is a challenge for the VCRO to navigate given its goal of not just supporting but instigating and developing interdisciplinary research.

We offer the following observations from the FLA: For the VCRO, success is measured in terms of external funding, excitement that sparks research, and results that attract recognition for UCB. This is not entirely in line with the motivation of many UCB researchers' measurement of success as published, peer reviewed papers, books, exhibits, performances, etc., which are rewarded in promotion and merit reviews. A direct, tangible, impact of research on society is the goal for some researchers, and more so in some disciplines than others, but it is not the goal of every researcher to produce such tangible impact. Some FLA members came to ask the following searching questions: Is it the job of the university administration to select the social problems around which to organize interdisciplinary research; or is it the job of the university administration to support individual faculty in their research? Is it possible to both in the context of exhortations to "do less with less"? The VCRO seeks to drive "big" research, but its own lack of resources ties its hands. Some FLA members proposed a visionary formation of larger units that could be funded through philanthropy, as in Stanford's School of Sustainability.

### **II. Researcher experiences**

FLA members conducted a detailed survey in order to understand researchers' perspectives on interdisciplinary research and collaboration at UCB, as well as their experiences with the VCRO. Our results suggest opportunities and challenges for developing multidivisional, large-scale research of the type that attracts large grants, but also for monodisciplinary and interdisciplinary research of different scales and with different funding potentials. We provide below an overview

of what we learned, with selected quotes that illustrate larger themes. We are aware that surveys can produce results that are skewed toward extremes, and particularly toward negative experiences; our observations here, as well our selection of quotes, attempts to reflect larger trends in the survey results and to triangulate themes from other components of the project. The survey was, by far, “widest net” used by the FLA in order to gain insight onto the into the needs of campus researchers regarding interdisciplinary collaborative research and the broader research environment, with 356 respondents who provided mostly complete data.

The majority of survey respondents (80%) were Senate faculty; other respondents included non-Senate Principal Investigators (PIs), postdoctoral researchers, and research staff. Overall, 43% of respondents had worked at Berkeley for 16 years or more, 15% 11-15 years, and 15% for 6-10 years. Among Senate faculty, responses were similar to the overall distribution of faculty (though 6-10% preferred not to respond to these questions). By rank, 15% were Assistant, 18% Associate, and 60% were Full Professors (compared to 17% Assistant, 22% Associate, and 61% Full on campus). 39% of Senate faculty respondents identified as women (compared to 34% of faculty) and 69% as white (compared to 70% of faculty). Respondents most frequently identified with the following research areas: 32%, social sciences; 26% biological and life sciences; 16% engineering; and 15% arts and humanities. Familiarity with the VCRO was dispersed: 21% were not at all familiar, 35% were a little familiar, 26% were somewhat familiar, and 18% were very familiar with the VCRO.

Most respondents described themselves as currently (48%) or previously (24%) engaged in interdisciplinary collaborative research with other Berkeley researchers. Of these 255 respondents with an history of IR at UC Berkeley, 72% had engaged in a *cross-campus* interdisciplinary collaborative research since 2018. 17% only collaborated with researchers in the same broad category, ranging from 4% of those in earth and environmental sciences to 22% of those in biological and life sciences with an history of IR at UC Berkeley.

Among Senate faculty and PIs (n=315), there was a high level of interest in cross-campus, interdisciplinary research focused on societal challenges, with 46% very interested and 33% somewhat interested. Among the very interested, there was enthusiasm for the potential of interdisciplinary work for generating more bold, impactful, and creative solutions for complex problems and for being intellectually invigorating. While similar themes were present among those who were somewhat interested, enthusiasm was tempered by the difficulties of doing research at Berkeley and recognition of the additional effort required for interdisciplinary collaboration, due to siloes, lack of research infrastructure, and lack of incentives. Among the Senate and PI group, many identified their work as being in areas of VCRO interest: 45% in health, 44% in social justice, and 35% in climate change.

We start with these observations before listing a broad range of recommendations, many of which overlap with our report's primary recommendations and the recommendations in other appendices. First, a critical mass of faculty express dissatisfaction with the research environment at UCB. Second, there appears to be widespread interest in interdisciplinary research, but there are simultaneously many stories of false starts and failed attempts and clear concerns about personal and institutional capacity, particularly in relation to teaching and service demands and weak research infrastructure. Third, seed funding emerged as a critical need that has proven to be linked to successful interdisciplinary research efforts on campus in the recent past; but that sort of support seems to be unavailable at the levels needed by faculty to move these projects and proposals forward.

Recommendations drawn from survey of researcher experiences:

Survey questions that focused on barriers and facilitators to research of all kinds consistently yielded the following themes: 1) limited faculty time; 2) lack of funds and resources; 3) administrative burdens; 4) and impenetrable bureaucracy; 5) difficulties connecting to other faculty; and 6) criteria for faculty advancement do not necessarily capture the kinds of efforts and products that belong to interdisciplinary research, particularly in "book" disciplines. Therefore, recommendations following from the survey data include:

1. **Recognize that time is a primary factor in accomplishing research, including interdisciplinary research, and find ways to give researchers more time.** Lack of time was attributed to burnout; large teaching and service responsibilities; lack of staff support; and a burdensome administrative apparatus. The administrative apparatus was seen as offering little assistance to research (see #3 below), and as creating time-consuming barriers. Lack of time was cited as a particular obstacle to interdisciplinary research, which requires lead time to identify collaborators, build relationships, organize a large initiative, and coordinate efforts. One social sciences professor wrote, "Time. It takes more time to get an interdisciplinary collaboration going. There's more work to translate ideas and concepts across disciplines."
2. **Make money and resources available to researchers.** Money and resources are obvious prerequisites for research, but lack of such was mentioned most often by above scale, full and associate professors as a barrier to research. Direct funding is required for research initiatives, graduate students and postdoctoral fellows, and summer salary. Funding and resource needs were also cited with respect to core facilities and infrastructure, labs, campus research centers, libraries, and recruiting experienced staff.
3. **Improve the amount and quality of administrative support for research.** A lack of administrative support was mentioned by faculty at all levels. There is a need for experienced, well-trained, well-paid staff, at the program, division, department, school,

and campus level. Excellent staff are seen as necessary for efficient and worthwhile use of time; grant writing support; and ultimately for freeing faculty to take on higher level projects. One above-scale professor in biological and life sciences wrote, “[T]here is no time to develop other skills or new interactions because we are all wasting time with useless tasks because there is no infrastructure support and there is no admin support. The campus is using highly paid, highly skilled individuals (faculty) to do clerical work.”

The lack of administrative support was cited as a particular obstacle to the large, multidivisional research collaborations that the VCRO seeks to promote. Center, training and foundation grants, for instance, are often interdisciplinary, but the difficulties with preparing these is instructive for VCRO’s goal of enabling multidivisional research. A professor in Biological Sciences wrote, “Paperwork associated with putting together even individual grants is onerous given the paucity of administrative support for faculty--doing this for large interdisciplinary grants is prohibitive without a staff person to assist in a major way. This is (especially) true even for things like training grants, where often the burden falls on faculty to collect the tables upon tables upon tables of information required for a submission.” Notably, numerous survey respondents commented that when they pursued large scale, interdisciplinary grants, they only did so with collaborators at other institutions that provide more adequate research infrastructure.

4. **Reduce what one researcher called UCB’s “formidable and impenetrable bureaucracy.”** Bureaucracy is seen as both impeding research directly and increasing the need for better administrative support. Researchers experience barriers to research in their dealings with, among other offices, SPO, HR, IT, Purchasing, and Contracts. Turnaround times, owing to heavy bureaucracy and lack of administrative support, are an obstacle to conducting research. One above-scale researcher in Health Sciences observed, “As a co-PI on grants, I am unable to see the budget on the web, which makes it almost impossible to plan.” This also affects UCB’s ability to lead or engage in collaborations with other universities: “Our campus lacks sufficient staff to get basic information: how much would X cost, how can we offer community partners honorarium, how to structure a joint appointment, etc. Berkeley systems are so burdened that we bring a lot of burden to the table.”
5. **Assist researchers in identifying others with adjacent or complementary research interests.** The difficulty of identifying researchers with adjacent or complementary research interests was named as a barrier that is especially significant to the VCRO’s goals of multidivisional research collaborations. One Arts and Humanities professor lamented that “In my experience, in Europe, scholars meet in seminars, in libraries, in archives and in research centers. None of that happens at Berkeley.” The difficulty in

getting to know fellow faculty members and developing research connections was foregrounded especially in survey responses by assistant professors.

6. **Reward interdisciplinary research efforts in merit and promotion cases.**

Interdisciplinary research—particularly the kind of multidivisional research envisioned by the VCRO—does not necessarily result in faculty advancement commensurate with what is achieved by conventional research paths. Interdisciplinary work, and in particular multidivisional collaboration, entails a longer lead time and more investment of energy than monodisciplinary research. Standards for publication and recognition differ among disciplines, and interdisciplinary research is valued differently across campus, which affects faculty’s prospects of tenure, promotion, and merit cases.



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