

How to effectively prepare a proposal in response to the Collaborative Research Advancement Grants program

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T. Douglas Mast (Biomedical Engineering)

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Preliminary Remarks

- This is a sophisticated audience of grant writers
- The focus of this presentation is on what is different about UC Internal Collaborative/Strategic Program
- We provide some history about our project and the team building associated with it—our advantages and how we used them
- We discuss some specific strategies for approaching this program
- We discuss some specific strategies for answering concerns of reviewers
- We review some general grant-writing tips
- We request audience participation on collaborative/team strategies

History of Our Project

- PhD student goes to seminars in other department (CSD -> Psych)
- Realizes Psych has a theoretical prediction about a practical problem encountered in CSD
- Generates a research idea while talking to other student
- Student gets CSD PI and Psych PI together to discuss idea
- Team roughs out vague plan, realizes need for expertise in BME
- CSD PI taps contacts in Biomedical Engineering to find a partner
- PI team identifies UC internal program as suitable for the project
- Cross/Interdisciplinary nature is baked in by virtue of idea generation
- Team started by analyzing themes common to our project and the RFP

Our Original Team



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Track 1 (Pilot Teams) and Track 2 (Strategic Teams)

- Our group did the Track 1 process, then applied for external (NIH) funding and was successful
- Although we didn't do Track 2 (it wasn't available then), the process we went through for Track 1 set us up for success in applying for external funding, and this is the aim of the Track 2 program
- Accordingly, I'm going to concentrate on how to set up Track 1 for success in both tracks

First Step: Analyze Title of the Granting Mechanism

Collaborative Research Advancement Grants Program –Track 1

Collaborative Research Advancement Grants Program –Track 2

- Focus on both tracks, but especially track 2
- “Research Advancement” is fairly empty of information
- “Collaborative” is key information—might be a theme

Second Step: Analyze the Request for Proposals (RFP)

Identify Themes

- Pilot Grants are designed to **encourage collaboration** and **stimulate integrated research teams** capable of performing highly innovative research that improves the lives of people and is likely to attract extramural funding. Within the general guidelines outlined above, the types of teams that will be considered include those that:
- **Stimulate the development of new multi-disciplinary teams** and pursue new lines of investigation;
- Involve and/or provide support for under-represented, junior investigators, post-docs, and/or graduate students;
- Partner w/ government, NGO, industry, or community entity to solve a problem;
- Pursue high-risk, high reward studies;
- Conduct research for new (or of existing) policy that addresses issues that impact people in our community and around the world;
- **Develop a balanced, cross-college research collaboration** that is both creative and analytical in nature

Theme with 5 mentions (title plus 4): Teamwork

- **Collaborative Research Advancement**
 - **Encourage collaboration**
 - **Stimulate integrated research teams**
 - **Stimulate the development of new multi-disciplinary teams**
 - **Develop a balanced, cross-college research collaboration**
- In our case, we had the cross-college thing, and we were a new team, but we had still to demonstrate integration/potential integration

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Theme with 4 mentions: Innovation

- highly innovative research
- pursue new lines of investigation
- new (or of existing) policy
- creative and analytical

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Theme with 2 mentions: Impact on people

- improves the lives of people
- addresses issues that impact people

In our case, two of us were clinicians and we had a practical clinical problem in mind to solve

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 - **Stimulate the development of new multi-disciplinary teams** and **pursue new lines of investigation**;
 - **Involve and/or provide support for under-represented, junior investigators, post-docs, and/or graduate students**;
 - **Partner w/ government, NGO, industry, or community entity to solve a problem**;
 - **Pursue high-risk, high reward studies**;
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Theme with 1 mention

- Involve and/or provide support for under-represented, junior investigators, post-docs, and/or graduate students (might be part of “team theme”)
- Partner.....to solve a problem
- Pursue high-risk, high reward studies
- is likely to attract extramural funding

In our case, because each of the PI's was a full Professor and had had grants before, we needed to emphasize training the **postdoc and students**. We weren't **partnering** with an institution outside UC so we had to emphasize other stuff. The project was an outgrowth of a funded project, so it was easier to establish **likelihood of external funding**. The project was **high risk** in that we needed to develop a system in order to test it, so we needed to concentrate on the reward part.

External funding: Not really an isolate

is likely to attract extramural funding = sub-theme?

Experience at UC suggested that the likelihood of external funding would probably be a theme x 4 (like innovation)

In our case, we needed to emphasize our past success while making it clear this was a new venture. Given the high risk status, we needed to show a lot of due diligence about possible sources of funding, so we included specific RFP's and due dates plus an analysis of how much pilot data was going to be needed.

Grant-writing for themes

- TEAM theme is paramount. Emphasize team composition, team building, team cohesion, team uniqueness, interconnectedness. If you don't have a team, you don't have a project that fits the program. If the team isn't integrated, you haven't fit the goals of the RFP
 - Involvement of junior faculty/students as a sub-theme here but not necessary
- External funding is probably second in importance, especially team-focused external funding
 - “Partner to solve a problem” a sub-theme here (increases likelihood of external funding)
- Innovation theme is third (probably due to pilot status). Emphasize if you can. If not, emphasize other major themes
 - “High-risk, high reward” a sub-theme here but not necessary

General Grant-Writing Strategy

- (1) Write from scratch
- (2) FOLLOW THE DIRECTIONS
- (3) Keep rewriting the first three paragraphs
 - (a) The problem
 - (b) Why it isn't solved yet
 - (c) How what you plan to do will solve it
- (4) Incorporate the important themes from the RFP
- (5) Check at key points that you are still following the directions

Dealing with Themes

- Organize your proposal in sections according to the RFP
- Themes with the most mentions in the RFP get their own section
 - Say more about major themes internally to sections about research plan
- Admit flaws up front. Reviewers will catch them anyway. If your project doesn't hit all the themes, say so in a positive way
- Emphasize which themes it does hit
- Remember themes will be a key aspect of your progress report if you get the money, so design outcome measures

How to Demonstrate Effective Teams/Collaboration

- (1) Don't use precious space describing qualifications of team (1 sentence is enough)
- (2) Spend space on anecdotes or designs for imposing and evaluating teamwork
- (3) Describe non-science skills that mesh (e.g. writing, statistics, lab skills) and any tests the team has passed (e.g. writing up articles together, presenting as a team, designing a course together, serving on committees together). This includes philosophical approaches to mentoring.
- (4) In our proposal, we hadn't worked together a lot, so we designed some tasks that would force us to collaborate (e.g. delivering lectures in each other's courses, mentoring students to present at different interdisciplinary conferences)
- (5) Remember this is a university-internal RFP. It's possible that UC would fund a project that could easily have come from a research institute, but at a university, focus on students is never inappropriate

More about Teams

- The project should be good for all team members' careers
- Broader Impacts will be different for different team members, because of different contributions
- Unlike external funding agencies, promoting careers is part of the university's mission
- Rather than emphasize team members' expertise, emphasize motivation, scientific path, and value of training to students
- Support likelihood that team will stay together
- Managing grant money is a team effort and requires utter transparency across the team

Ideas from audience

- Ways to demonstrate team building/cohesion
- Outcome measures for themes

Questions?