Developing a Winning Research Proposal

QUESTIONS TO THINK ABOUT AS YOU DEVELOP YOUR RESEARCH PROPOSAL

1. What is the overarching problem that you are aiming to solve? Clearly state your objective early – some people say it should be the first sentence of the first paragraph of the first page!
2. What new knowledge would your proposal produce if successful? Remember that NSF primarily funds fundamental discovery research.
3. If successful, how will your research plan accomplish the research objective? Is your chosen methodology the best approach to solve this problem? How does this methodology differ from what is currently being done?
4. Who/what would benefit from your research? Remember to address both the **Intellectual Merit** (the contribution made to a scientific or engineering field) and the **Broader Impact** (the contribution to society at large). How are you specifically qualified to lead this project? What are your prior research accomplishments that have positioned you for success in this endeavor?
5. Who will you collaborate with – from within and outside of the University – to ensure adequate expertise to meet your project's goals?
6. What administrative and/or structural resources are available to you – from within (primarily) and outside of the University – that will aid you in your success? What facilities, centers, institutes, or administrative offices can be utilized in support of this project?
7. If your project does not accomplish its objectives, are there any benefits that could emerge from this research?
8. Why should the NSF fund this proposed research? How does this proposal address the requirements of the RFP?
9. Is the budget reasonable? The proposed budget should request exactly what is reasonable to accomplish the project – no more, no less.

DO

- Provide evidence of a thorough mastery of all relevant literature through appropriate citation.
- Articulate clearly and provide adequate background information so that an expert in a related discipline could confidently evaluate the project's merit and impact.
- **Call the Program Officer to ask questions: about your understanding of the RFP, your approach to the proposal, what review committees particularly value/critique**…
- Ask a senior colleague to review a draft of the proposal, to give feedback on the project's feasibility, competitiveness, innovation, and technical quality. Don't wait until the last minute. THIS CANNOT BE DONE 48 HOURS BEFORE THE DEADLINE – GIVE THEM ENOUGH TIME SO YOU CAN ACT ON THE ADVICE.
- Reach out to Columbia faculty who have received grants through the same program that you are applying to. Find their names by searching the agency's awards database (see here for NSF and NIH), then searching for *Columbia University* in the 'Organization' field.

DO NOT

- Give up if the first attempt is unsuccessful. Objectively understand the reviews, edit the proposal in response to the criticisms, and resubmit (either to the same program, another program within the same agency, or to another agency or foundation entirely).
- Rush. Take ample time developing each and every section of the proposal. This is a very competitive funding opportunity -- what sets a great proposal apart from a winning proposal can be the obvious care with which it is prepared.
- Go through this process alone – reach out to your research community within your department, center, institute, and/or school. Notify your SPA project officer early within the process, and ask for help.