

GUIDANCE ON WRITING A SUCCESSFUL NRSA APPLICATION

Advice for Research Administrators and Applicants

Jeremiah D. Paulus, PhD, CRA and Angel Syrett, PhD
The University of Texas at Austin



TEXAS
The University of Texas at Austin

Abstract: As the funding landscape becomes more difficult, it is important to understand what elevates a proposal past the funding line. This is especially true for graduate students and postdocs who may not have much experience in writing grants, nor do they have the time at their career stage for countless submissions. Here, we present advice to give to students and postdocs who are writing NRSA F31 and F32 proposals. Through discussion with study section participants and analysis of funded proposals, we have come up with writing advice that goes beyond the normal NIH instructions. We have presented this guidance to grad students and postdocs at our university and have seen a tremendous increase in scores and funded proposals.

GENERAL

- The NIH mission is “to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability.” The candidate should be sure they can talk about how their project accomplishes this.
- The goal of the NRSA is to “clearly enhance the individual’s potential to develop into a productive, independent research scientist.” The candidate should be sure to discuss this career goal, whether it involves academia, industry or government labs.
- The documents should be persuasive. The candidate is trying to convince the reviewers they know what they are doing and that they will be successful.
- The documents are very redundant. The candidate should be sure they all agree with each other.
- The candidate should gear the application towards a specific institute or center. If the candidate has time, they should send a draft of their specific aims page to the relevant program officer and discuss its relevance to the institute/center.

RESEARCH RELATED

Project Summary/Narrative:

- These are the first documents the reviewers will see, so they need to be clear and attention-grabbing.
- One way to write the Summary is to: 1) Start with the larger issue/topic; 2) Move to the smaller subtopic and discuss why this is important; 3) Explain the specific need/problem you will address; 4) Summarize your approach to solve/improve that need/problem; 5) Specify the direct results the project will produce; and 6) Link those direct results to future results that will have an impact on the larger issue/topic.
- The Narrative should very succinctly describe how this project either directly or indirectly improves human health.

Specific Aims:

- This is the second document the reviewers will see. It should be a self-contained document that accurately summarized the research and produces interest and excitement in the reviewers.
- The candidate should start with a larger issue/topic they want to study. Gradually get smaller in scope to the particular need/problem you will address.
- They should list the titles of the aims exactly as they will appear in the Research Strategy. Under each aim, the candidate should provide a short description of the aim. Each aim should also have a hypothesis that is clearly labeled.
- Final summary paragraphs are sometimes used if there is room. The candidates can summarize the overall goals of the project and link these back to how they will impact the larger issue/topic.

Research Strategy:

- The candidates should sparingly use changes in font (bold, underline, larger size) to highlight important information and help organize the document.
- The “Innovation” section is not required, but the candidate may consider including it if they are doing something particularly innovative.
- Preliminary studies are not required, but each of your aims should have a logical rationale based on data, whether this data came from you, your lab, or the literature.
- Since grad students/postdocs are still proving themselves, they should include more experimental detail than professors. The candidate should be sure to include numbers of replicates, positive and negative controls, statistics, etc.
- Grad students/postdocs often underestimate how long it will take to accomplish research. The candidate should be sure to plan for experiments not working, animals not breeding, time for writing articles, presenting at seminars, attending conferences, etc. A Gantt chart can help the reviewers see how long the candidate envisions each aim/subaim will take.
- The reviewers will be experts in the research area, but not necessarily the candidate’s specific line of research or techniques. The candidate should go into as much detail as they might to a grad student in their program, but not in their lab.
- If there is space, the candidate might include a conclusion paragraph where they reiterate what they hope to accomplish, discuss future avenues of research and link this project to the larger issue/topic.

APPLICANT & SPONSOR QUALIFICATIONS

Background and Goals:

Doctoral Dissertation and Research Experience

- This section’s purpose is to establish an understanding of the candidate’s foundation of research experience and gives the candidate a chance to display their ability to place their experiences in the context of the larger scope of their particular field.
- The candidate should trace the path of their trajectory in terms of personal inclination, sort of the how and why they’ve decided to engage in research on this level
- The candidate should sum up each section (undergrad, grad, postdoc) with what they accomplished (papers, posters, presentations) and also what they learned from the experience (better writer, better at troubleshooting, made decisions about particular types of research or careers).

Training Goals and Objectives

- The candidate should lay out the plan for their current short-term goals (classes, professional development, etc.). They should describe their dedication to the long-term goal of being an independent scientist and explain how and why they arrived at the idea of doing research.
- The persuasive style should be formal, clear and respectful. The candidate needs to substantiate their plans with concrete information on the classes, projects, technical skills and professional skills they’re setting their mind to acquiring. They don’t need to go too far in terms of detail of timing (use Section C for this). The candidate should explicitly say that they’re dedicated to human health research, which is the goal of the NIH. Since this is a training grant, the candidate should be sure to mention at least one technical area (skill, model organism, etc.) that they will be trained in. Other things to mention include: Research project (in general terms), Technical skill development, Coursework, Teaching, Professional development, Responsible conduct of research, Other ideas about how to be successful at their future career.
- The candidate should discuss the next step in their career and how they will accomplish this (apply for a job, apply for more funding, etc.).
- The goals outlined in this document should agree with the Sponsor/Co-Sponsor Statement.

Sponsor/Co-Sponsor Statement:

- The candidate should consider a co-sponsor if their primary sponsor does not yet have a solid track record of funding, publications or training. They may also consider a co-sponsor if they already are being trained in two different labs, or if their primary sponsor does not have much experience with the candidate’s specific career goals.
- This document should have a similar training plan as the Background and Goals document.
- The Sponsor/Co-Sponsor should be specific about their roles in the training plan. They need to describe how they will help the candidate accomplish the specified goals.
- The information presented should be specific to the career goals of the candidate. The plan should describe where that specific candidate may have weaknesses and how the training plan will address these weaknesses. It should also specifically mention the candidate’s ultimate career goal (such as academia, biotech, etc.) and how the training plan will help the candidate accomplish this goal.
- If the candidate is a postdoc who wants to remain in academia, the plan should specifically state that they will be able to take their research with them and the sponsor/co-sponsor will not compete with the candidate’s research.

INSTITUTIONAL

Training in the Responsible Conduct of Research:

- The candidate should pick one training opportunity (formal, face-to-face) to go into detail about. Use the section headings (Format, Subject Matter, Faculty Participation, Duration of Instruction, Frequency of Instruction).
- They should also mention any other formal or informal training that they have received or will receive.
- The candidate should be sure to mention how their sponsor/co-sponsor will help train them in the responsible conduct of research.

Selection of Sponsor and Institution:

- The candidate should persuade the reviewers that their institution and their sponsors are the ideal place for them and their research to succeed. They should describe resources and opportunities that are unique to where they are.

Description of Institutional Environment and Commitment to Training:

- The candidate should include information such as lab meetings, journal clubs, core facilities, departmental administrators, career counselors, seminar series, advisory councils, etc. that indicate how they are supported by their home department up through the university.
- Graduate students also need to go into detail about their programs. They should be specific about any electives they are taking.



The University of Texas at Austin
College of Natural Sciences



LaMontagne
Center
for Infectious Disease