AGI Webinar
Wednesday, 6 May 2020 13:00 Eastern

Federal Grant Proposal
Writing 101 for Students

NASA Postdoctoral Program
Administered by USRA

Presented by Jeff Berger
Current NPP Fellow at NASA
Johnson Space Center, Houston
Purpose of the NASA Postdoctoral Program (NPP)

NPP provides an opportunity to:

• Contribute to NASA's missions in space science, earth science, aeronautics, space operations, exploration systems, and astrobiology

• Work with world-class NASA scientists at NASA Centers and facilities

NPP Fellows:

• Are placed in a NASA Center and have an advisor on-site
  • e.g., Johnson Space Center, Goddard Space Flight Center, Ames Research Center, Jet Propulsion Lab

• Have a one- to three-year appointment

• Receive a stipend starting at $60k and annual $10k travel budget

Details about the program: https://npp.usra.edu/about/
To apply to the NPP

Main eligibility requirements

- Ph.D. completed before start date
- U.S. citizenship, Lawful Permanent Resident (LPR) status, or the Exchange Visitor J-1 Visa (research scholar only)
- Relocate to NASA Center or program institute (financial assistance available)
- Other details https://npp.usra.edu/apply/eligibility/

Deadlines

- March 1, July 1 and November 1, annually
- You can only submit one application per cycle
- https://npp.usra.edu/apply/information/
Key components of the application

The application has many components *some of which may take weeks or months*

- Identify a research opportunity and contact the NASA advisor
- Application form
- Letters of recommendation (three)
- Transcripts
- Research proposal (properly formatted; less than 15 pages)
- https://npp.usra.edu/apply/information/

Review process

- Evaluated by NASA Center advisor
- Evaluated by three external reviewers
  - Scientific merit, references, academic and research record
- Final evaluation by NASA Center
Advice on putting together a successful application

Contacting the NASA Center advisor for the research opportunity is essential

• This is the first and most important task

• Prospective NPPs will typically contact the advisor at least 4-6 months in advance of the deadline

• These initial discussions will establish or identify:
  • Are your research interests compatible with the advisor and with that NASA Center?
  • Is your research approach/style compatible with the advisor?
  • Would you be a better match with a different NASA advisor?
  • Can the advisor and NASA Center accommodate your research?
  • The advisor can give tips on writing a successful proposal
Advice on putting together a successful application

Writing the proposal – overarching considerations

• Ask yourself ‘how well do my research goals fit in with those of the NASA Center and advisor?’
  • Look at the research of previous NPP Fellows who worked with the advisor in the past
   https://npp.usra.edu/fellows/former-fellows/

• Ask yourself ‘if I win this award, do I actually want to do this project?’
  • NPPs work on their project the first year, without teaching, writing other proposals, or other significant uses of time
Advice on putting together a successful application

Writing the proposal – guidelines

• Follow the formatting guidelines exactly according to the npp.usra.edu instructions – they tell you how to organize the proposal into sections and deviating from this will likely reduce the score and/or result in rejection

1. statement of problem,
2. background and relevance to previous work,
3. general methodology, procedures to be followed, and timeline for completion of each step;
4. explanation of new or unusual techniques,
5. expected results and their significance and application
6. literature citations, where appropriate.
Advice on putting together a successful application

Writing the proposal – simple but vital details

• Proposals are higher quality when the author has time to breathe – write in sections over weeks (or months)
• Target a finish time one week before the final deadline
• Ask a trusted colleague or mentor to review it
• Ask a friend to proofread it
• Request letters of recommendation as early as possible
• If you are making extensive changes the same day it is due, you might have a problem
• Don’t be afraid to delay your submission to the next cycle, but check with the Center advisor first
Advice on putting together a successful application

Develop an appropriate scope

• Proposals are easier to review/evaluate if broken down into tasks
• These tasks must be reasonable for 2 years of work
• Include a ‘mitigation strategy’ – i.e., a discussion of what you will do if any component or task is not successful
  • E.g., what will you do if a task fails?

• The proposals I’m familiar with have 2-4 tasks. A simplified example:
  • Task 1: I will characterize element mobility in naturally altered volcanic samples from Mauna Kea
  • Task 2: I will conduct controlled laboratory alteration experiments on volcanic samples from Mauna Kea
  • Task 3: I will evaluate tasks 1 and 2 with respect to Mars rover observations on element mobility on the martian surface to constrain martian geochemical processes
Advice on putting together a successful application

Should you go out of your “comfort zone”?

• A postdoc is typically a logical outgrowth of your Ph.D., but how far away from your comfort zone should you go?

• If you stay in your comfort zone:
  • Pro: more likely to write a clear, well-supported proposal and demonstrate full competence
  • Con: the proposal might read as a small incremental addition to your dissertation with minimal innovation

• If you leave your comfort zone:
  • Pro: most NASA advisors encourage NPPs to expand skills and experiences, more innovation can be included, and you demonstrate confidence in your ability to broaden your research
  • Con: you will expose the gaps in your knowledge, and reviewers often focus on these in an overly negative way
    • You can probably mitigate this con by explaining your ‘deficiencies’ in the statement of purpose
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