Testimonials

“The mock review was my first experience with proposals. I participated as a reviewer first, which gave me great insight into how proposals are evaluated, and then I submitted my first proposal to the mock review panel. I got great feedback on what needed to be clearer, and what came across well in my proposal. I was able to make adjustments after the mock review panel and ended up getting my proposal funded – hooray!”

Anna Lena Deppenmeier, Proposal Writer and Reviewer

“The Mock Panel Review, for me, directly led to the submission of a proposal to help fund my career beyond the postdoc. Moreover, the experience and pending proposal were hallmarks during my tenure-track job interviews which resulted in 3 offers to consider. This experience further prompted me to volunteer to serve on actual proposal review panels with greater comfort about the overall process.”

Curtis Walker, Proposal Writer and Reviewer

“The three sets of comments from my peers on each of the two proposals that I submitted to the mock review panel helped me so much in figuring out the strengths and limitations of my current drafts. One of my proposals was funded, TBD on the other!”

Olivia Clifton, Proposal Writer and Reviewer

Survey Results:
What have the participants gained?

- Meeting and getting advice from an NSF program officer (18 of 19)
- Useful advice on proposal writing (16 of 19)
- An appreciation of the review process and the importance of writing a well-constructed proposal (16 of 19)
- A feel for how long Panel Reviews go and the importance of having a good idea (14 of 19)
- Ideals (non-science) for a proposal that I’m writing (5 of 19) (half of writers)
Abstract

Proposal writing is a key component of many academic careers in STEM. While many graduate and postdoctoral programs require proposal writing in the format of a research statement or a prospectus, we identified a need for postdoctoral scientists to gain additional insight into the proposal writing, submission, and reviewing processes. We addressed these needs by facilitating a Mock Panel Review of proposals written by postdoctoral scientists that intend to apply for proposal funding. Participants in the Mock Panel Review include postdoctoral fellows as both proposal writers and proposal reviewers in addition to an experienced principal investigator or a Funding Agency Program Manager as the panel moderator. This guide includes a description of how to implement a Mock Panel Review in postdoctoral groups, including in-person, virtual, and mail-in formats. The National Center for Atmospheric Research Fellows Association views the Mock Panel Review as an invaluable exercise for learning more about the proposal writing and review processes. Several proposals that were submitted to previous Mock Panel Reviews have won research grants from various funding agencies. The aim of this guide is to share our experiences with the broader community in hopes of postdoctoral scientists becoming better equipped for supporting their research ideas and taking a confident next step in their future positions as Early Career Scientists.

Key Points

1. Mock Panel Review provides hands-on grant proposal writing and reviewing experience to Early Career Scientists.

2. Previous participants have won research grants from various funding agencies after incorporating feedback from a Mock Panel Review.

3. The Mock Panel Review is straightforward to organize and provides numerous rewards to new proposal writers and reviewers.

What is a Mock Panel Review?

Grant funding is a major component to most research careers, including university faculty and “soft money” research positions. Funding agencies, including the National Science Foundation (NSF), the Department of Energy (DOE), the National Oceanic and Atmospheric Administration (NOAA), and the National Aeronautics and Space Administration (NASA), announce available funding and their research missions through proposal calls. Proposals are awarded based on expert evaluations from a panel of anonymous reviewers. Given the competitive nature of proposal writing, we designed a Mock Panel Review to bring more transparency to the review process for Early Career Scientists.

The Mock Panel Review is designed to provide hands-on experience for new Principal Investigators (PIs) by reviewing proposals that are written by postdocs applying for proposal funding. The format of the Mock Panel Review follows a similar format to what is used by many funding agencies, including the NSF, DOE, NOAA, and NASA. Participants in the Mock Panel Review include postdoctoral fellows as both proposal writers and proposal reviewers in addition to an experienced PI or a Funding Agency Program Manager panel moderator. All
postdoc participants have a series of tasks to complete before meeting on the Mock Panel Review day, where the moderator guides the discussion of each proposal. Here, we provide guidance on how to organize a Mock Panel Review for the postdocs in your institution.

**Timeline overview and expected time commitment for participants**

- **Planning**
  - 1-2 coordinator(s)
  - 3 hours (accumulated)

- **Recruiting Reviewers**
  - 10-15 reviewers are ideal
  - 2-3 reviewers per proposal
  - 2 hours per proposal review

- **Finalizing Writers**
  - 1-5 proposals
  - Note: can be a mix of proposal written by postdocs and example proposal from other PIs from your institution; add example proposals if you have a surplus of reviewers

- **Mock Panel Review**
  - 30 minutes per proposal, plus 1 hour for extra discussion

The exercise described in this guide has helped postdocs in Atmospheric Sciences get real proposals funded. Every institution will vary in the number of interested participants and time allowed for postdocs to commit to a Mock Panel Review. As such, we offer this as a guide that can be modified to meet the needs of different institutions. We note that this same general format can be applied to other disciplines and can even extend to graduate students who are interested in applying for research fellowships that are chosen following a similar panel format.

**How do you organize a Mock Panel Review?**

The Mock Panel comprises **proposal writers, reviewers**, and a **moderator**. The Mock Panel Review **coordinator(s)** manages the timeline, participants, reviewer assignments, and correspondence with the moderator, as described below.

I. **Getting started - Institutional Knowledge is Key**

Institutional knowledge on proposal writing is a key first step to the proposal writing process, as some institutes may have restrictions on how postdocs can participate in
proposals. As such, the coordinator(s) should consider inviting experienced proposal writers and administrative staff to speak with postdocs about proposal writing at their specific institute. During this event, the invited speakers could discuss the differences between writing manuscripts versus proposals, the typical time burden of a funding agency panel review and institution-specific regulations for postdoc and early career scientist’s eligibility for leading proposals. Once everyone understands their potential options for proposal writing, they can take ownership of identifying a relevant proposal call for their research ideas.

II. **Set some dates!**

The coordinator(s) invites postdocs to submit a proposal to a Mock Panel Review. An example email is provided in E1. Proposal writers should identify a specific proposal call with a defined deadline and have a preferred timeline for feedback (Helpful tip 1). The coordinator should take into consideration the writers’ timelines when scheduling the Mock Panel Review. One option is to invite postdocs to populate a shared spreadsheet (see Table 1) with contact and deadline information and correspond with proposal writers to define a date that works best for as many writers as possible (Helpful tip 2).

If there are more than five participants interested in submitting proposals at the same time, we recommend organizing multiple Mock Panel Reviews. Capping the number of submitted proposals will keep the time spent on discussing proposals manageable. Consider taking turns coordinating the Mock Panel Reviews!

Table 1. Example spreadsheet for proposal writers to indicate interest, target proposal deadline, and preferred timing of the Mock Panel Review

<table>
<thead>
<tr>
<th>Interested proposal writers:</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>email</td>
<td>proposal deadline</td>
<td>Preferred timing of Mock Panel Review</td>
</tr>
<tr>
<td>Future_PI_1</td>
<td><a href="mailto:Future_PI_1@univ.edu">Future_PI_1@univ.edu</a></td>
<td>April 1, 2019</td>
<td>Jan–mid-March 2019</td>
</tr>
<tr>
<td>Future_PI_2</td>
<td><a href="mailto:Future_PI_2@univ.edu">Future_PI_2@univ.edu</a></td>
<td>To be determined</td>
<td>To be determined</td>
</tr>
<tr>
<td>Future_PI_3</td>
<td><a href="mailto:Future_PI_3@institute.edu">Future_PI_3@institute.edu</a></td>
<td>Sept 1, 2019</td>
<td>June–July 2019</td>
</tr>
</tbody>
</table>

Once the date of the Mock Panel Review has been set, the coordinator(s) should establish a target timeline. Some important dates to consider are provided below:

A. **Proposal Writing Institutional Knowledge seminar** – As described above, institutional knowledge regarding postdoc eligibility for serving as a proposal PI is key. Having 1–3 experienced PIs share their perspective is an invaluable professional development event in itself.
B. **Proposal submission sign up deadline** – 3 to 5 weeks before the Mock Panel Review date, set a deadline for when people need to commit to submitting a proposal intended for a proposal call from a funding agency. In their commitment, ask them for their proposal title, funding agency, 3-4 keywords, and their privacy preferences (Helpful tip 3). This allows the coordinator(s) to know how many reviewers are needed and where to assign them.

C. **Reviewer sign up deadline**– 3 weeks before the Mock Panel Review, set a deadline for people to commit to serving as a reviewer and attending the Mock Panel Review. By setting a deadline, the coordinator(s) can avoid needing to assign people to proposals last minute.

D. **Proposal Package Deadline** – 2.5 to 3 weeks before the Mock Panel Review, set a deadline for proposal writers to submit their proposal packages to the coordinator(s). Allow a couple of days to account for late submissions.

E. **Mock Panel Review Preparation 30 minute Briefing** – Approximately 2 weeks before the Mock Panel Review, set up a 30 minute meeting with all participants where the coordinator(s) can describe what to expect for the Mock Panel Review and participants can ask questions regarding their specific roles.

F. **Review period** – approximately 2 weeks before the Mock Panel Review, define a dedicated review period that can be communicated when recruiting reviewers. When the coordinator(s) communicates reviewer assignments (example here), reviewers should be advised to dedicate approximately 2-3 hours per proposal during this two week period (Helpful tip 4).

III. **Identifying a Moderator**

Research proposals are evaluated differently than scientific manuscripts. While the technical and scientific methods are expected to be innovative and sound, proposals are also rated according to feasibility, the intellectual strength of the research team, its broader impacts, budget appropriateness, clarity of hypotheses and objectives, and often a consideration of risk management. Additionally, there are funding agency specific needs for research that are considered. These criteria are different from the manuscript review process, which is why an experienced panel reviewer is highly recommended to moderate the Mock Panel...
Review, serving as a Mock Program Director. The moderator may be a senior scientist who has been a PI on many proposals, a scientist with significant experience participating in review panels, or a former or current funding agency Program Director. When inviting a current Program Director, it is important and necessary that new proposals are not targeted to their respective program in order to avoid a conflict of interest.

IV. Proposal Writers - Proposal Package

Each proposal writer will submit a proposal package that will be sent to reviewers before the panel meets. The coordinator should also collect at least one sample proposal from a PI for the panel to review as a group. A typical Proposal Package will include:

A. Proposal call prompt
   Ideally proposals will be written for a specific call from a funding agency. Information regarding the proposal call should be provided with the proposal for the reviewers to consider in their evaluation. E.g., if you plan to submit a proposal to NASA, provide the text provided in the NASA call.

B. Proposal
   The proposal should be written following the guidelines provided in the proposal call. The proposal can be written as a rough draft intended for high level feedback or a nearly completed draft intended for both organizational and detailed feedback. Proposal writers can indicate the level of feedback they desire when they submit their proposal.

C. Budget
   Proposal writers are also invited to prepare a budget according to the call guidelines and with guidance from their institutional resources. Having budgets to discuss during the Mock Panel Review is a helpful exercise for new PIs.

D. Conflicts of Interest
   Proposal writers are advised to state possible conflicts of interest related to sharing their intellectual property (proposal) with persons that may have competing interests. If there are significant concerns, the coordinator(s) can distribute printed copies to reviewers to avoid sharing electronic copies.

The coordinator(s) should remind the proposal writers of the Proposal Package Deadline with specific details on format. The proposal packages should not be shared with anyone outside of the designated reviewers before the Mock Panel Review. On the day of the Mock Panel Review, the coordinator(s) should allow access for only panel members with exception of conflicts of interest. All proposal packages should be deleted after the Mock Panel Review to protect proposal writer confidentiality. Shared storage spaces, such as Dropbox, Google Drive, Teams, etc., are great for managing access to the proposal packages.
V. Recruiting and Matching Panel Reviewers

In addition to the proposal writers, the coordinator(s) should invite postdocs to participate as reviewers once the date of the Mock Panel Review and the 2-week review period has been determined. An example email is provided here. Postdocs can sign up to review by providing their contact information and research topic keywords that will be used for proposal matching. Each proposal writer should be required or highly encouraged to also serve as a reviewer with the understanding that they will not be in the room when their individual proposal is discussed. The coordinator(s) can emphasize that reviewing proposals is beneficial to all participants due to the rich discussion and the hands-on experience of reviewing real proposals.

Each proposal will need a total of three reviewers - one primary reviewer and two secondary reviewers. Each participant will review at least one proposal, but serve as the primary reviewer only once to limit the workload. Participants must agree to not copy or share proposal material for their own benefit other than learning proposal writing. Both primary and both secondary reviewers will be tasked with reading the assigned proposal(s) and providing a written review and an overall rating (Helpful tip 5). During the Mock Panel Review, the primary reviewer will lead the discussion on their assigned proposal by describing the funding opportunity (proposal call prompt), summarizing the proposed research, and commenting on strengths and weaknesses of the written proposal. The secondary reviewers will also be expected to add to the primary reviewer’s discussion with comments they feel the panel should consider. Finally, the three reviewers will make edits to their written or bulleted feedback that will be provided to the proposal writer within a few days of the panel meeting.

While recruiting reviewers, keep in mind that it is not necessary to match reviewers perfectly with the proposal research areas. In fact, a reviewer that does not completely overlap scientifically can provide constructive feedback on readability, organization, and clarity because they are not familiar with the technical details. It also protects the proposal writer’s scientific intellectual property by not including reviewers with conflicts of interest.

If there is a surplus of reviewers, the coordinator should consider including 1-3 previously submitted proposals offered by PIs at their institute as sample proposals. It is important to keep the panel size to 10-15 people in order to facilitate discussion and to mimic a true panel review. It’s important in the reviewer recruitment process to be clear about the optimal number of panel participants.

VI. The Mock Panel Review

On Mock Panel Review day, the panel participants will meet for 2-4 hours depending on the number of submitted proposals (Helpful tip 6). The first proposal will require 30-40 minutes in order to bring all participants up to speed on the process. The
subsequent proposals tend to take significantly shorter time (15–20 minutes). Before
the meeting, the coordinator(s) should determine an order of discussion. The first
proposal should be an example proposal so that all participants can be familiar with
the process. The remaining order of proposals should prioritize the submitted
proposals over other example proposals. For any proposal written by a panel member,
the proposal writer should leave the room to allow honest discussion for their proposal
and to facilitate anonymity.

To start, each panel member can introduce
themselves and briefly describe their research
area. The moderator and coordinator(s) should
then provide some rules of conduct for the
panel, such as being conscious of unconscious
biases and establishing mutual respect for all
panel members and their voices. The
moderator should also remind reviewers of the
panel discussion format, as suggested here:

1. Any persons with conflicts of interests (e.g., proposal writer) exit the room.

2. Ask each reviewer to state their initial preliminary score to set an expectation of
the discussion to come.

3. Primary reviewer describes the funding opportunity and important
requirements, summarizes orally the proposed research, and comments on the
strengths and weaknesses of the written proposal and budget (if applicable).
The primary reviewer will then rate the proposal on a scale based on the
requested research and needs of the proposal call. (3–5 minutes)

4. Both secondary reviewers will add to the primary reviewer comments and
provide ratings for the written proposal. (5 minutes)

5. The entire panel will be able to view the proposal while the designated
reviewers are speaking. The panel will have an opportunity to ask questions
and discuss the proposal. (5–10 minutes)

6. After the discussion, each designated reviewer will be asked if they want to
adjust their rating. The entire panel may vote for a score if desired by the
coordinator(s).

7. The primary and both secondary reviewers will then be tasked with
summarizing their respective anonymous comments from the panel
discussions in writing. The coordinator(s) will distribute the comments to the
proposal writers

The coordinator(s) and moderator should leave 15–20 minutes at the end of the Mock
Panel Review for an overall discussion of key takeaways from the Mock Panel Review
discussions.
Note: The Mock Panel Review is easy to transition to a virtual format to accommodate physical distancing needs and is representative of virtual panel reviews held by funding agencies.

VII. **Mail-In Mock Review**

A Mail-In Mock Review is a straight-forward alternative to the in-person or virtual Mock Panel Review. It is preferred when interest in a Mock Panel Review is limited, or if the coordinator wishes to accommodate a proposal writer’s unique timeline.

Similar to the Mock Panel Review, collect descriptive information on the proposal and define a target timeline. The coordinator should directly request time of 2-3 individuals to serve as reviewers for the expected proposal during the determined Review Period. To find reviewers, the coordinator can request the writer to provide some possible reviewers. Reviewers can indicate if they wish to remain anonymous.

The submitted proposal package can be sent to reviewers with a defined deadline for the review to be submitted by email to the coordinator. The coordinator can then briefly look over the review to ensure the feedback is constructive and respectful before sending the reviews to the proposal writer.

Due to the absence of a meeting, it’s important for the coordinator to send reminders to reviewers to ensure they are available and will submit their review on time.

**What do participants get out of a Mock Panel Review?**

We have organized two in-person Mock Panel Reviews and two mail-in Mock Reviews as a part of the NCAR Fellows Association’s professional development events. In March 2019, 4 postdocs submitted proposals that were intended to be submitted for competitive awards and 4 additional postdocs participated as reviewers. In March 2020, 3 postdocs submitted 4 proposals, 13 additional postdocs and 3 graduate students served as reviewers. Both panels were moderated by an NSF Program Manager, who guided discussion and provided numerous tips on proposal writing and how the panel review process is typically conducted. Following both in-person reviews, we conducted a survey to determine the usefulness and time commitment of the Mock Panel Review.

We have combined the survey results from the two in-person panels, summarized below. Although the majority of the participants were not proposal writers, 84% of participants have gained useful advice on proposal writing. In addition, they have earned an appreciation of the proposal review process and learned the importance of writing a well-constructed proposal. More than 70% of participants have gotten a feel for the length of the panel reviews: despite spending weeks and months on writing, a proposal is often discussed in only 20 minutes or less during the panel review.

Nearly all participants appreciated meeting and getting advice from an NSF program officer. Panel moderators provide guidance and define the structure for the panel review and are
able to share their own panel experiences with the participants. Therefore, it is extremely valuable to ask experienced moderators to lead the panel.

Participants also voiced feedback for improvement, which we have incorporated in this guide. A majority of participants would like to have more guidance on how to review proposals, which we note now in Helpful tip 5. One suggestion would be to send a sample proposal package with reviews to all participants prior to the panel discussion to give participants an example of the written review format. While reviewing an example proposal as a group is a time-consuming process, more than 80% of participants thought this was a useful exercise.

Navigating the proposal process is a key professional development skill

Postdocs are busy early career scientists who are pressured to conduct research and publish papers. Some postdocs may be hesitant to invest the hours on an activity that may not give them immediate returns. However, learning how proposal writing and reviewing work, especially through an immersive experience such as the mock panel review, will undoubtedly benefit their future endeavors for funding research. While it is impressive to have numerous papers published from your research, it is also important to consider how your research can serve as a seed for a proposal that will lead to proposal funding. As Early Career Scientists, leading research proposals is certainly an outstanding skill set to develop for your future as a researcher, lab PI, or faculty member.

Acknowledgements

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E1 - Initial email to gauge interest:

Subject: Mock Panel Review - Learn more and sign up!

Dear Postdocs,

Please consider joining us in a Mock Panel Review. Postdocs will identify a call for proposals at a funding agency of their choice and develop a proposal with collaborators over the next few months. A panel consisting of postdocs (including the proposal writers) will review the proposals and provide feedback to the proposal authors. The panel will be moderated by a senior PI with review panel experience. This will provide postdocs with experience on both sides of the proposal process and useful feedback on their proposals. The timeline of this exercise will depend on the participants and the respective proposal due dates.

If you are interested in participating, please sign up on this spreadsheet (see Table 1).

Thanks!

E2 - Email to list serves to recruit reviewers

Subject: <date of mock panel review> - Mock Panel Review - Invitation to Review

Hi Everyone,

Please consider serving as a reviewer for our Proposal Mock Panel Review to be held on <date> at <time> in <location/room#>. Surveys from past Mock Panel Reviews show that 84% of participants have gained useful advice on proposal writing. We will have N proposals that will be reviewed during the two weeks prior to the Mock Panel Review. Reviewers are asked to spend approximately 2 hours per proposal during the review period. To sign up as a reviewer, please list your name and research topic areas to this spreadsheet by <deadline> so we can assign reviewers. Proposals will be sent to reviewers on <date>. See timeline below for more details.

<insert name> has volunteered to moderate the panel discussion. With 6 proposals, we expect the Mock Panel Review to take approximately 3-4 hours. Light refreshments will be provided.

Thanks!

E3 - Email for reviewers with their assignments

Subject: Mock Panel Review - Walker Assignments

Hi <reviewer>,

Thank you for signing up to participate in the Mock Panel Review, scheduled for <date> at <time>. Please see your proposal assignments and a reminder of your role below. In efforts to respect the privacy of the proposal reviewers, proposal packages are available in this <secured google folder> that is only shared with your institution email. If you need me to share it with your personal email, please let me know. Please do not distribute these proposals without the permission of the authors. Please spend focused time on this, but also keep in mind that we are aiming to mimic a typical panel review. In reality, many reviewers read proposals on flights and are unlikely to spend hours reading. Typically, reviewers spend 2 to 3 hours to complete their reviewer duties.

Please let me know if you have any questions.

<reviewer name>

Secondary Reviewer for ProposalPackage_Future_Pi1
Reviewer role reminder:

Primary reviewer: During the panel meeting, you will be asked to provide the panel with a brief description of the requirements/expectations from the proposal call, a summary of the proposed research, and highlights the strengths and weaknesses.

Secondary reviewer: Review the proposal with any remaining time you have. During the panel meeting, you will be asked to add additional points the Primary Reviewer may have missed.

A written review will be compiled by the primary and secondary reviewers after the panel meeting and sent to the author.