

REVIEW PANEL #1

You've been thinking about some of the fundamental questions at the frontiers of neuroscience, and you've learned about some of the cutting-edge approaches being used to advance the frontier. While the possibilities for exciting research are boundless, funding for neuroscience research is finite - so it's important to ensure that we are funding the best projects, using the best available techniques, with the best chance of advancing our understanding of the nervous system and our ability to prevent, treat, and cure neurological disorders.

The National Institutes of Health (NIH) funds a large fraction of the neuroscience research performed in this country. The NIH includes a number of intramural researchers, who are housed within the NIH itself; however, most NIH-funded research is carried out by extramural researchers, individuals or consortia who are typically housed in colleges and universities across the country. Each project must compete for funding by submitting a grant proposal to the NIH, which assembles groups of knowledgeable scientists to review these proposals and make recommendations about which proposals should receive funding.

How would you decide which grant proposals should receive funding? What factors are most important to you when determining whether a specific project is worth doing? When funds are limited, what kinds of projects would you rather see funded - and how do you decide?

In this assignment, you will have the opportunity to consider several proposed projects and discuss the merits, limitations, and potential impact of each study. Each of these studies has already been approved for funding at NIH - so all of them should have some merit. However, each proposed study has a specific focus, uses specific techniques, and will enhance neuroscience in some ways but not others.

Assignment:

You have been assigned to a **Scientific Review Group (SRG)**. Each SRG has been assigned three grant proposals for review. Each member of the group will be responsible for providing a written review and score for **two** of these three proposals.

Before class, you will access information about both of your assigned proposals on NIH RePORTER (see below) and read the abstract. You will also look for outside resources to support an informed interpretation of the proposal - for example, the website of the proposing lab, and relevant review and primary articles. Some of these have been provided for you - please look for additional information on your own as needed. Once you've read through the materials for each proposal, **you will fill out the Impact Worksheet for both of your assigned proposals**. These Impact Worksheets are due at the beginning of class, submitted on Blackboard, by email, or turned in to me - but please bring a copy of your worksheets to class (either print or electronic), to help you during discussion.

During class, you will meet with the other members of your SRG to discuss the proposals and **make a recommendation for which one of the three grant proposals should be given top priority for funding**. Before your discussion, you will select one member of your SRG to serve as the Chair - this person will serve as the moderator of your discussion. In the second half of class, you will present your decision and your reasoning to the rest of the class.

After class, **you'll fill out a Debriefing Worksheet**, describing your SRG discussion and the results of your review.

Writing Your Review and Scoring Each Proposal:

Basic information about every grant proposal funded by NIH is publicly available, through a searchable online database called NIH RePORTER:

<http://projectreporter.nih.gov/reporter.cfm>

To begin preparing your review, you will first use the provided information to look up the proposal in this database. Make sure you choose the entry matching the assigned grant proposal - some principal investigators will have multiple funded grant proposals. From the NIH RePORTER database entry, you will be able to access the proposal's abstract and public health relevance. You may also find published papers funded by this grant (under Results).

Once you've read the abstract carefully, think about the key questions addressed by this proposal, what the significance might be for the field, and what techniques might be employed. Note that some abstracts state which methods they will use - for others, you may need to use additional materials to make a prediction about which techniques might be used.

Use other resources to support your understanding both of the scientific questions involved and the technical approaches likely to be used. For example, the lab's website might provide an overview of the scientific questions pursued by that laboratory's research. Review articles and primary literature (particularly those authored by the proposing lab - available through PubMed: **www.ncbi.nlm.nih.gov/pubmed**) will provide both scientific and technical context. Also, you might use NIH RePORTER to search for other funded projects that might be related to the proposal you're reviewing - to give you a sense of what else is being done in the field. I've provided suggestions for some of these materials for you - but feel free to be creative here and look up anything that might help you decide how to review the proposal. You might be interested in different aspects of the proposal, based on what you think is most important for your review.

Please note: Because you aren't reading the entire proposal, there may be gaps in the available information - particularly for the specific methods used. If a specific method isn't mentioned in the project abstract, make an educated assumption about which method(s) they might be using, note this in your review, and score the proposal based on that assumption. The goal of this assignment is to get you thinking about what kinds of research are worth funding and how methodology might enter into that decision-making process - guessing the actual techniques used is less important than thinking about why a particular technique might (or might not) be useful.

For both of your assigned proposals, you will write a paragraph summarizing the Overall Impact of the proposal - the major factors influencing the fundability of this proposal, both positive and negative. You will also provide scores and bulleted lists of factors for three specific review criteria: 1) significance and innovation; 2) investigators and environment; 3) approach (see Impact Worksheet for more specific information).

Grading:

For the first review panel, you'll receive full credit for your written reviews based on completion of the Impact Worksheet - please be sure to address all of the review criteria, and do your best to prepare for your in-class discussion. (The other members of your group will appreciate it.) You will also receive full credit for your debriefing (due before the following class period) if you address all of the prompts described in the Debriefing Worksheet handout. Please try your best - I'll give you feedback about your responses, and this feedback should help you when we do the second review panel towards the end of the semester.

This assignment will count for 15% of your total grade - 5% each for completion of your reviews, 5% for your debriefing. If you are unable to attend class that day, please let me know as soon as possible.

If you have any questions about this assignment - or if you'd like some help finding additional resources or interpreting the proposal abstract - just let me know.

IMPACT WORKSHEET

As a member of a Scientific Review Group, please fill out the following worksheet for both of the proposals that you have been assigned to review. Type up your responses to each prompt, turn in one copy to me by the beginning of class (Blackboard, email, or hard copy), and bring another copy (electronic or paper) with you to class to facilitate your panel discussion. Please include your name and net ID at the top of each page. Source: This worksheet has been modified from the Research Project Grant (RPG) Critique Template provided by NIH.

1) Overall Impact

Write a paragraph summarizing your view of the overall impact of this proposal. Some questions that you might consider: Is this research significant? Is this research conceptually or technically innovative? Is this research likely to influence and advance the field, by providing critical knowledge, technical expertise, or clinical application?

For the following three items, please provide bulleted responses (strengths and weaknesses), and provide a score for that item based on the following scale: 1 = exceptional (few minor flaws or no flaws); 2 = very good (few flaws); 3 = needs improvement (some strengths, but several significant flaws); 4 = poor (few strengths, significant flaws). You do not need to rank the proposals against each other at this time - just evaluate each proposal on its own merits.

2) Significance and Innovation - Is this research important? Is it conceptually or technically innovative?

Strengths:

-

Weaknesses:

-

3) Researchers and Environment - Are the researchers proposing the study likely to be capable of actually conducting the proposed research? Is the environment (e.g. university, institute) where this research will be conducted likely to provide appropriate infrastructure and support?

Strengths:

-

Weaknesses:

-

NOTE: For the above section, you might consider the following questions. Has this researcher demonstrated a track record of productivity in the proposed field (i.e. previous grants funded, previous papers published)? Is it likely that they have access to the laboratory facilities necessary for this research? (Lab websites might be helpful for you to address this question.)

4) Approach - Are the methods proposed appropriate for the questions asked, and are they likely to give useful results? Do these approaches have significant limitations, and are these limitations likely to impact the ability of the researchers to make advances in this field?

Strengths:

-

Weaknesses:

-

NOTE: For the above section, if the methods are not explicitly stated in the proposal abstract, please infer which methods they're most likely to use - perhaps based on previous publications from that researcher, on methods described on the lab website, or on your own knowledge of available techniques. Please specify any assumptions you've made, and write your critique based on those assumptions.

DEBRIEFING WORKSHEET - MAKE-UP

Please address each of the following prompts in your written response (1-2 paragraphs each), and include your name and NetID at the top of each page. This assignment will be due at the beginning of class on March 16 (via Blackboard, email, or hard copy in-class).

- 1) In your own evaluation of the grant proposals, what was the most important factor? Why was this factor important to you?**
- 2) You are all undergraduates at a large research university, with specific scientific experiences and career aspirations. How did your individual background and goals inform your opinions in this activity?**
- 3) After the initial peer review process is completed, final funding decisions at NIH are made by institute-specific councils composed of academic scientists, clinicians, board members for disease research foundations, and NIH officials. Choose two of these roles, and discuss how adopting this role might (or might not) change your funding priorities.**
- 4) Discuss some of the key ethical issues involved in funding scientific research. What is at stake when we prioritize funding for one study over another?**