NORDP Professional Development Committee Webinar

February 3, 2017

How Do I Review Thee? Let me Count the Ways

Review Criteria

- **Mandatory** criteria reviewers consider
  - Recent NSF criteria emphasizes *transformative* and *interdisciplinary* research
  - Recent NIH criteria emphasize *clinical*, *interdisciplinary*, and *translational* research
- Reviewers are provided a proposal scoring/rating form and instructed to **review proposals based on how well the mandatory review criteria are met**
- Each funding agency has its own review process

NIH Core Review Criteria

Also referred to recently as "scored criteria"

1. Significance
2. Approach
3. Innovation
4. Investigator
5. Environment

Significance

- Does the project address an important problem or a critical barrier to progress in the field? If the aims of the project are achieved, how will scientific knowledge, technical capability, and/or clinical practice be improved? How will successful completion of the aims change the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field? Is there a strong scientific premise for the project

Approach

- Are the overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project? Are potential problems, alternative strategies, and benchmarks for success presented? If the project is in the early stages of development, will the strategy establish feasibility and will particularly risky aspects be managed?
- Have the investigators presented strategies to ensure a robust and unbiased approach, as appropriate for the work proposed?
- Have the investigators presented adequate plans to address relevant biological variables, such as sex, for studies in vertebrate animals or human subjects?

- If the project involves human subjects and/or NIH-defined clinical research, are the plans to address 1) the protection of human subjects from research risks, and 2) the inclusion (or exclusion) of individuals on the basis of sex/gender, race, and ethnicity, as well as the inclusion (exclusion) of children, justified in terms of the scientific goals and research strategy proposed?

Innovation

- Does the application challenge and seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions? Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense? Is a refinement, improvement, or new application of theoretical concepts, approaches or methodologies, instrumentation, or interventions proposed?

Investigator

- Are the PD/PIs, collaborators, and other researchers well suited to the project? If Early Stage Investigators or New Investigators, or in the early stages of independent careers, do they have appropriate experience and training? If established, have they demonstrated an ongoing record of accomplishments that have advanced their field(s)? If the project is collaborative or multi-PD/PI, do the investigators have complementary and integrated expertise; are their leadership approach, governance and organizational structure appropriate for the project?

Environment

- Will the scientific environment in which the work will be done contribute to the probability of success? Are the institutional support, equipment and other physical resources available to the investigators adequate for the project proposed? Will the project benefit from unique features of the scientific environment, subject populations, or collaborative arrangements?

Some Additional…

- Additional Review Criteria
  - Protections for Human Subjects
  - Inclusion of Women, Minorities, and Children
  - Vertebrate Animals
  - Biohazards
  - Resubmission/Renewal/Revision Applications
- Additional Review Considerations
  - Rigor & Transparency
  - Budget and Period Support
  - Select Agent Research
  - Applications from Foreign Organizations
  - Resource Sharing Plans

Overall Impact

- Overall Impact is the synthesis/integration of the five review criteria that are scored individually and the additional review criteria, which are not scored individually
- Reviewers will provide an overall impact score to reflect their assessment of the likelihood for the project to exert a sustained, powerful influence on the research field(s) involved, in consideration of the five core review criteria and additional review criteria (as applicable for the project proposed).

Are All Scores Equal?

- Studies to examine correlation between Core Review Criteria scoring and Overall Impact score
  - Preliminary 2010/11 NIGMS study examined correlation between individual criteria scores and Overall Impact score
  - April 2015 study from NIH CSR examined the correlation between individual criteria scores and Overall Impact score
  - June 2016 study from NIH OER examined the key criterion scores that drive impact score *and* funding outcomes
- Findings
  - All of the criteria are influential despite score range restriction good scores are necessary on all 5 Core Review Criteria for a good Overall Impact score, but…
  - Approach > Significance > Innovation > Investigator > Environment
- Conclusion: **The quality of ideas matter more than reputation** (good for new investigators!)

Weighted Review

Standard Selection Criteria:

- Importance of the problem (15 pts)
- Design of Research Activities (50 pts)
- Plan of Evaluation (10 pts)
- Project Staff (15 pts)
- Adequacy and Accessibility of Resources (10 pts)

An example of ED NIDDR Selection Criteria

NIH Enhancing Peer Review

- Enhanced review criteria
  - Critiques for each Core Review Criterion in a structured summary statement
  - A paragraph in written critiques to explain factors that informed reviewer's Overall Impact score
- Applications restructured to align with review criteria

NSF Proposal Review

- Three guiding review principles
- Two review criteria
- Five review elements
- Rating
- Process

Merit Review Criteria Guiding Principles

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects.

NSF Merit Review Criteria

- When evaluating NSF proposals, reviewers should consider:
  1. What the proposers want to do
  2. Why they want to do it
  3. How they plan to do it
  4. How they will know if they succeed
  5. What benefits would accrue if the project is successful
  - These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers are asked to evaluate all proposals against two criteria:
- **Intellectual Merit:** The intellectual Merit criterion encompasses the potential to advance knowledge; and
- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes

NSF Review Elements

Elements considered in the review for *both* Merit Review Criteria:

- What is the potential for the proposed activity to
  - Advance knowledge and understanding within its own field or across different fields (Intellectual Merit);
  - Benefit society or advance desired societal outcomes (Broader Impacts)?
- To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
- Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
- How well qualified is the individual, team, or institution to conduct the proposed activities?
- Are there adequate resources available to the PI (either at the home institution or through collaborations) to carry out the proposed activities?

Additional Solicitation Specific Review Criteria

- Augment the two standard NSB-approved Merit Review Criteria of intellectual merit and broader impacts
- Specific for the individual solicitation
- Not included for all solicitations

All the Same Review

NIH Core Review Criteria	NSF Review Elements – Intellectual Merit
Significance : ...project address an important problem or a critical barrier to progress in the field	Potential of the activity to advance knowledge and understanding, and benefit society
Approach: ...overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project	Well-reasoned, well-organized plan for proposed activities and mechanism to assess success
Innovation: ...challenge and seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions	Originality, creativity and transformative nature of proposed activities
Investigators: ...PD/PIs, collaborators, and other researchers well suited to the project	Qualifications of individual(s), team, or institution
Environment: ...scientific environment in which the work will be done contribute to the probability of success	Adequate resources to carry out proposed activities

All the Same Review

NIH Overall Impact	NSF Review Elements – Broader Impact
Likelihood for the project to exert a sustained, powerful influence on the research field(s) involved	The potential to benefit society and contribute to the achievement of specific, desired societal outcomes

NEH Application Review Criteria

- Intellectual Significance
- Quality of Work; Feasibility of Work Plan
- Innovation
- Project Staff Qualifications
- Overall Value to Humanities Scholarship

NATIONAL ENDOWMENT FOR THE
Humanities

NEH Application Review Criteria

- The intellectual significance of the project for the humanities, including its potential to enhance research, teaching and learning in the humanities

NEH Application Review Criteria

- The quality of the conception, definition, organization, and description of the project and the applicant's clarity of expression
- The feasibility of the plan of work

NEH Application Review Criteria

- The quality of innovation in terms of the idea, approach, method, or digital technology (and the appropriateness of the technology) employed in the project

NEH Application Review Criteria

- The qualifications, expertise, and levels of commitment of the project director and key project staff or contributors

NEH Application Review Criteria

- The likelihood that the project will stimulate or facilitate new research of value to scholars and general audiences in the humanities, or use new digital technologies to communicate humanities scholarship to broad audiences

Still All the Same Review

NIH Core Review Criteria (and Overall Impact)	NEH Application Review Criteria
Significance : ...project address an important problem or a critical barrier to progress in the field	Intellectual Significance
Approach: ...overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project	Quality of Project; Feasibility of Work Plan
Innovation: ...challenge and seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions	Quality of Innovation
Investigators: ...PD/PIs, collaborators, and other researchers well suited to the project	Project Staff Qualifications
Overall Impact: ...Likelihood for the project to exert a sustained, powerful influence on the research field(s) involved	Overall Value to Humanities Scholarship

VA Criteria for Review and Scoring

- **Significance** of the research
- Scientific **approach**, including preliminary data and appropriateness of experimental design
- **Feasibility** of the proposed studies, including the expertise of the PI and collaborators and the environment available for conducting the studies
- **Innovation**
- **Relevance** to the healthcare of veterans

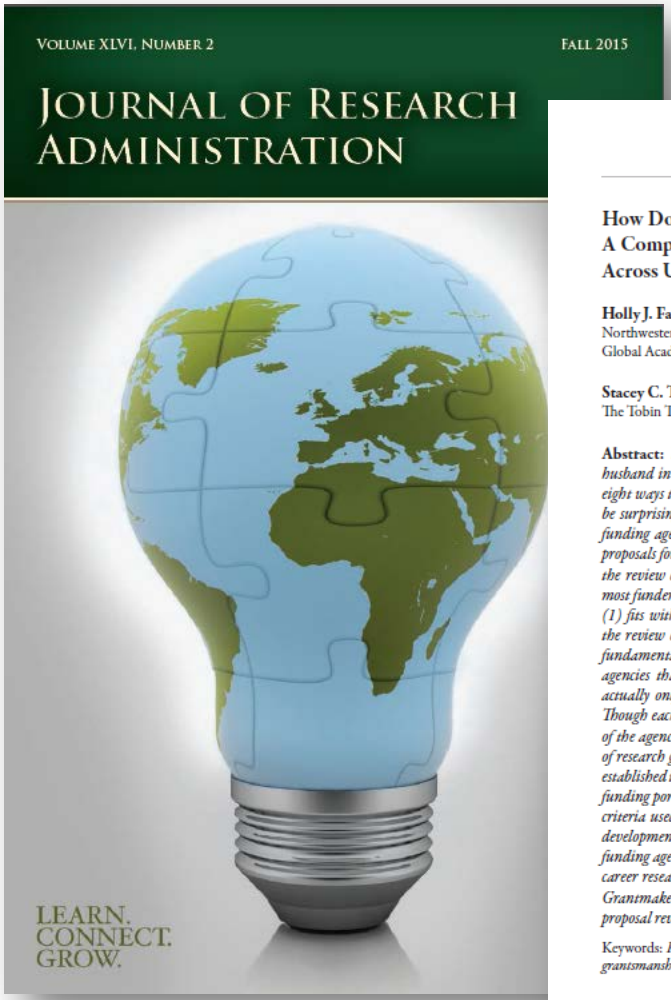
Department of Veterans Affairs

Always All the Same Review

Eight key questions considered by reviewers of research grant proposals + associated review criteria terms used by 10 US federal funding agencies

Key Question	Review Criteria Terms
Why does it matter?	Significance, Importance
How is it new?	Innovation, Novelty, Creativity
How will it be done?	Approach, Plan, Methodology, Objectives, Aims
In what context will it be done?	Environment, Resources, Populations, Facilities
What is special about the people involved?	Investigators, Organization, People, Researchers, Personnel, Partners, Collaborators, Staff
What is the return on investment?	Impact, Value, Relevance
How effectively will the financial resources be managed?	Budget
How will success be determined?	Evaluation, Assessment

Peer Reviewed Peer Review



Falk-Krzesinski, Tobin 79

How Do I Review Thee? Let Me Count the Ways: A Comparison of Research Grant Proposal Review Criteria Across US Federal Funding Agencies

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Abstract: *While Elizabeth Barrett Browning counted 25 ways in which she loves her husband in her poem, "How Do I Love Thee? Let me Count the Ways," we identified only eight ways to evaluate the potential for success of a federal research grant proposal. This may be surprising, as it seems upon initial glance of the review criteria used by various federal funding agencies that each has its own distinct set of "rules" regarding the review of grant proposals for research and scholarship. Much of the grantsmanship process is dependent upon the review criteria, which represent the funders' desired impact of the research. But since most funders that offer research grants share the overarching goals of supporting research that (1) fits within its mission and (2) will bring a strong return on its financial investment, the review criteria used to evaluate research grant proposals are based on a similar set of fundamental questions. In this article, we compare the review criteria of 10 US federal agencies that support research through grant programs, and demonstrate that there are actually only a small and finite number of ways that a grant proposal can be evaluated. Though each funding agency may use slightly different wording, we found that the majority of the agencies' criteria address eight key questions. Within the highly competitive landscape of research grant funding, new researchers must find support for their research agendas and established investigators and research development offices must consider ways to diversify their funding portfolios, yet all may be discouraged by the apparent myriad of differences in review criteria used by various funding agencies. Guided by research administrators and research development professionals, recognizing that grant proposal review criteria are similar across funding agencies may help lower the barrier to applying for federal funding for new and early career researchers, or facilitate funding portfolio diversification for experienced researchers. Grantmakers are furthermore provided valuable guidance to develop and refine their own proposal review criteria.*

Keywords: *Funding portfolio, research grants, proposal review criteria, peer review, federal funding, grantsmanship, proposal development, research development, research administration*

The Journal of Research Administration, (46)2

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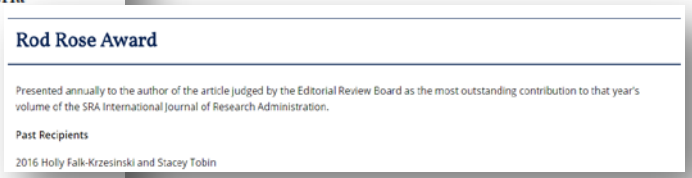


Rod Rose Award

Presented annually to the author of the article judged by the Editorial Review Board as the most outstanding contribution to that year's volume of the SRA International Journal of Research Administration.

Past Recipients

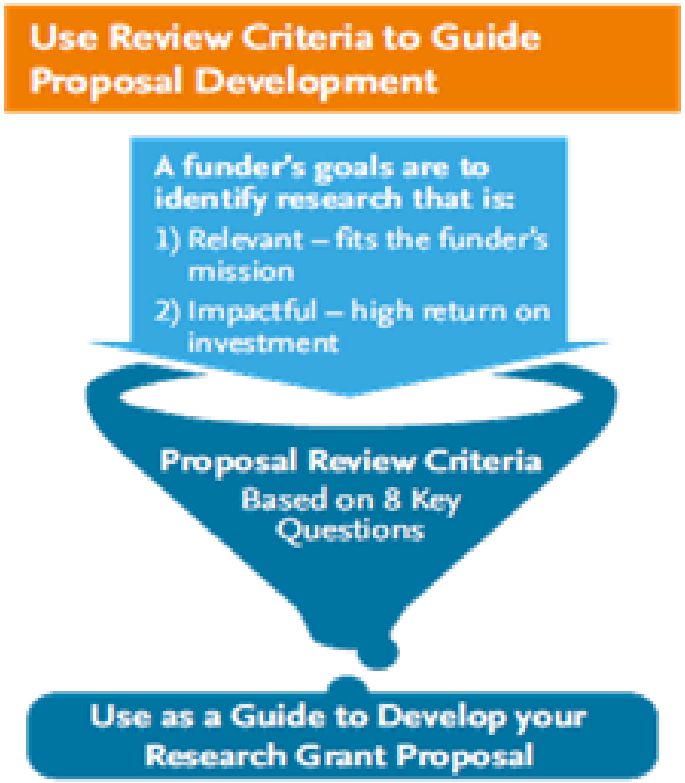
2016 Holly Falk-Krzesinski and Stacey Tobin

Falk-Krzesinski, H.J., and Tobin, S.C. (2015). How Do I Review Thee ? Let Me Count the Ways : A Comparison of Research Grant Proposal Review Criteria Across US Federal Funding Agencies. J. Res. Adm. 46, 79–94.

Guide for Research Development Professionals

- Research grant proposal review criteria are remarkably **aligned across 10 US federal funding agencies**, despite the differences in their missions and the terminology each uses for its own review process
- **Only eight key questions** summarize the collective research grant proposal review criteria across all these federal agencies
- The eight key questions provide **a starting point for** researchers, research administrators, and funders to assess the review criteria used by **most, if not all, other research funding opportunities**

Guide for Research Development Professionals



- Each funder is trying to achieve the same goal during the grant review process:
  1. Find those research projects that fit the funder's mission, and
  2. Are worth its investment
- Through this lens, the review criteria used for research proposals across agencies are easier to understand and address
- May encourage new investigators to apply for funding, and seasoned investigators and research development offices to consider a diversified set of funding sources for their research portfolios.

How Do I Review Thee? Let Me Count the Ways: A Comparison of Research Grant Proposal Review Criteria Across US Federal Funding Agencies

Holly J. Falk-Krzesinski, PhD[1,2] and Stacey C. Tobin, PhD[3]

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ABSTRACT

While Elizabeth Barrett Browning counted 25 ways in which she loves her husband in her poem, "How Do I Love Thee? Let me Count the Ways," **we identified only eight ways to evaluate the potential for success of a federal research grant proposal**. This may be surprising, as it seems upon initial glance of the review criteria used by various federal funding agencies that each has its own distinct set of "rules" regarding the review of grant proposals for research and scholarship. Much of the grantsmanship process is dependent upon the review criteria, which represent the funders' desired impact of the research.

Since **most funders that offer research grants share the overarching goals of supporting research that (1) fits within its mission and (2) will bring a strong return on its financial investment,** the review criteria used to evaluate research grant proposals are based on a similar set of fundamental questions. In this article, we compare the review criteria of 10 US federal agencies that support research through grant programs, and demonstrate that there are actually only a small and finite number of ways that a grant proposal can be evaluated.

Though each funding agency may use slightly different wording**, we found that the majority of the agencies' criteria address eight key questions.** Within the highly competitive landscape of research grant funding, new researchers must find support for their research agendas and established investigators and research development offices must consider ways to diversify their funding portfolios, yet all may be discouraged by the apparent myriad of differences in review criteria used by various funding agencies. Guided by research administrators and research development professionals, recognizing that grant proposal review criteria are similar across funding agencies may help lower the barrier to applying for federal funding for new and early career researchers, or facilitate funding portfolio diversification for experienced researchers.

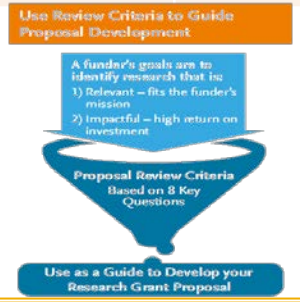
COMPARING REVIEW CRITERIA

Key Question	NIH Core Review Criteria	NSF Review Elements
Why does the research matter?	Significance – project addresses an important problem or a critical barrier to progress in the field	Intellectual Merit - Potential of the activity to advance knowledge and understanding Broader Impact – Potential of the activity to benefit society
How is the research new?	Innovation – project challenges current paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions	Creative, original, and transformative concepts and activities
How will the research be done?	Approach - overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project	Well-reasoned, well-organized, rational plan for carrying out proposed activities and mechanism to assess success
In what context will the research be done?	Environment - scientific environment in which the work will be done contribute to the probability of success	Adequate resources available to carry out the proposed activities
What is special about the people doing the research?	Investigators - PD/PIs, collaborators, and other researchers are well suited to the project	Qualified individual, team, or institution conducting the proposed activities
What is the return on investment?	Overall Impact - likelihood for the project to exert a sustained, powerful influence on the research field(s) involved	The potential to benefit society and contribute to the achievement of specific, desired societal outcomes

KEY REVIEW QUESTIONS

Eight key questions considered by reviewers of research grant proposals + associated review criteria terms used by 10 US federal funding agencies

Key Question	Review Criteria Terms
Why does it matter?	Significance Importance
How is it new?	Innovation Novelty Creativity
How will it be done?	Approach Plan Methodology Objectives Aims
In what context will it be done?	Environment Resources Populations Facilities
What is special about the people involved?	Investigators Organization People Researchers Personnel Partners Collaborators Staff
What is the return on investment?	Impact Value Relevance
How effectively will the financial resources be managed?	Budget
How will success be determined?	Evaluation Assessment



CONCLUSION

We have demonstrated that **research grant proposal review criteria are remarkably aligned across 10 US federal funding agencies**, despite the differences in their missions and the terminology each uses for its own review process. Moreover, a set of **only eight key questions summarizes the collective research grant proposal review criteria across all these federal agencies**.

While the sheer number of non-federal funding opportunities makes a similar comparative analysis of their review criteria impractical, we suggest that the eight key questions emerging from our analysis provide a starting point for researchers, research administrators, and funders to assess the review criteria used by most, if not all, other research funding opportunities. This is reasonable given that each funder is trying to achieve the same goal during the grant review process: find those research projects that fit the funder's mission and are worth its investment. Through this lens, the review criteria used for research proposals across agencies are easier to understand and address, which may encourage new investigators to apply for funding, and seasoned investigators and research development offices to consider a diversified set of funding sources for their research portfolios.

For the 10 US federal agencies included here, we hope that the analysis serves as a starting point to develop even greater consistency across the review criteria—perhaps even a single canonic, cross-agency set of review criteria—used to evaluate federal research grant proposals

REFERENCES

Falk-Krzesinski, H.J., and Tobin, S.C. (2015). How Do I Review Thee ? Let Me Count the Ways : A Comparison of Research Grant Proposal Review Criteria Across US Federal Funding Agencies. J. Res. Adm. *46*, 79–94.

Find the Grantsmanship Guide on Elsevier Publishing Campus at https://www.publishingcampus.elsevier.com (College of Skills Training | Research Funding | Grantsmanship Guide)

The work is based on material developed by HJF-K for the Grantsmanship for the Research Professionals course at Northwestern University School of Professional Studies (SCS PHIL_NP 380-0), and was presented in part at the National Organization of Research Development Professionals 7th Annual Research Development Conference in Bethesda, MD, April 29-May 1, 2015.

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Quick Guide

Research Grant Proposal Review Criteria

...understanding the rules of the grantsmanship game

Eight key questions that funders ask reviewers to consider when they evaluate your research grant proposals, and the associated review criteria terms used across various funding agencies:

- Why does the research matter?
  - Significance
  - Importance
- How is the research new?
  - Innovation
  - Novelty
  - Creativity
- How will the research be conducted?
  - Approach
  - Plan
  - Methodology
  - Objectives
  - Aims
- In what context will the research be done?
  - Environment
  - Resources
  - Populations
  - Facilities
- Who's involved in the research and what's special about those people?
  - Investigators
  - Organization
  - People
  - Researchers
  - Personnel
  - Partners
  - Collaborators
  - Staff
- What is the return on investment?
  - Impact
  - Value
  - Relevance
  - Return on investment (ROI)
- How will success be determined?
  - Evaluation
  - Assessment
- How effectively will the financial resources be managed?
  - Budget

Top tips and tricks

Understand the funder: It's important that your research aligns with the funder's goals. Read the funder's mission statement to consider synergies between its goals and your research program.

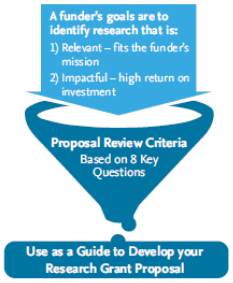
Recognize that funders share the same goal when evaluating research proposals: Funders that offer research grants want to support research that fits within their mission (relevant) and will bring a strong return on their financial investment (impactful).

Know that it's really all the same review: Despite the use of funder-specific jargon to describe review criteria, reviewers are asked to evaluate proposals based on a common set of fundamental review questions—the eight key questions listed to the left.

Use the review criteria as your roadmap: The funder's review criteria directly inform how the proposal content should be presented and how much space should be afforded for each section of the proposal.

Use the key questions as a guide: If a funder does not provide transparent information about its review criteria in its proposal guidance, reach out to the program officer to ask about the eight key questions and which might best apply to the particular opportunity to which you're applying.

Use Review Criteria to Guide Proposal Development



And remember...

- To succeed in the highly competitive landscape of research grant funding, you should consider diversifying your funding portfolio.
- Understanding that different agencies use a similar set of review criteria will help you develop proposals for a wide range of funders.

Content produced by: Holly J. Falk-Krzesinski, PhD, Elsevier Global Academic Relations and Northwestern University School of Professional Studies, and Stacey C. Tobin, PhD, Principal, The Tobin Touch, Inc. Material originally reported in: Falk-Krzesinski, Holly J., and Stacey C Tobin. 2015. "How Do I Review Thee ? Let Me Count the Ways : A Comparison of Research Grant Proposal Review Criteria Across US Federal Funding Agencies." Journal of Research Administration 46 (3), 79–94.

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NORDP 2017 Annual Research Development Conference

Pre-Conference Workshops

http://www.nordp.org/2017-conference-workshops-peering

Peering into the Future: How Research Development Professionals Can Proactively Advance Faculty Grantsmanship Skills Through a Better Understanding of the Peer Review Process

- Susan Carter
- John Crockett
- Holly J. Falk-Krzesinski

This workshop will focus on providing both scholarly and practical information as well as interactive tools that Research Development (RD) professionals can use to help faculty, particularly junior faculty, understand the critical importance of the peer review process in grant development success. The workshop will help build grantsmanship skills as well as the ability to teach those skills to faculty, and further participants' understanding of the peer review process.

Grantsmanship for the Research Professional

- Executive Education Style 2-dy Workshop Course
  - Grant Resources
  - Funders, Funding Opportunities & Finding Funding
  - Research Program Development, Proposal Planning
  - Review Process
  - Proposal Components, Focus on Narrative and Budget Sections
  - Proposal Submission
  - Post Award Primer
  - Team Science
- Spring, 2017 → Watch for dates soon!
  - School of Professional Studies, Philanthropy and Nonprofit Organizations Certificate Program
  - Northwestern University, Chicago Streeterville Campus
  - Tuition: $625.00
  - http://sps.northwestern.edu/program-areas/professional-development/philanthropy/

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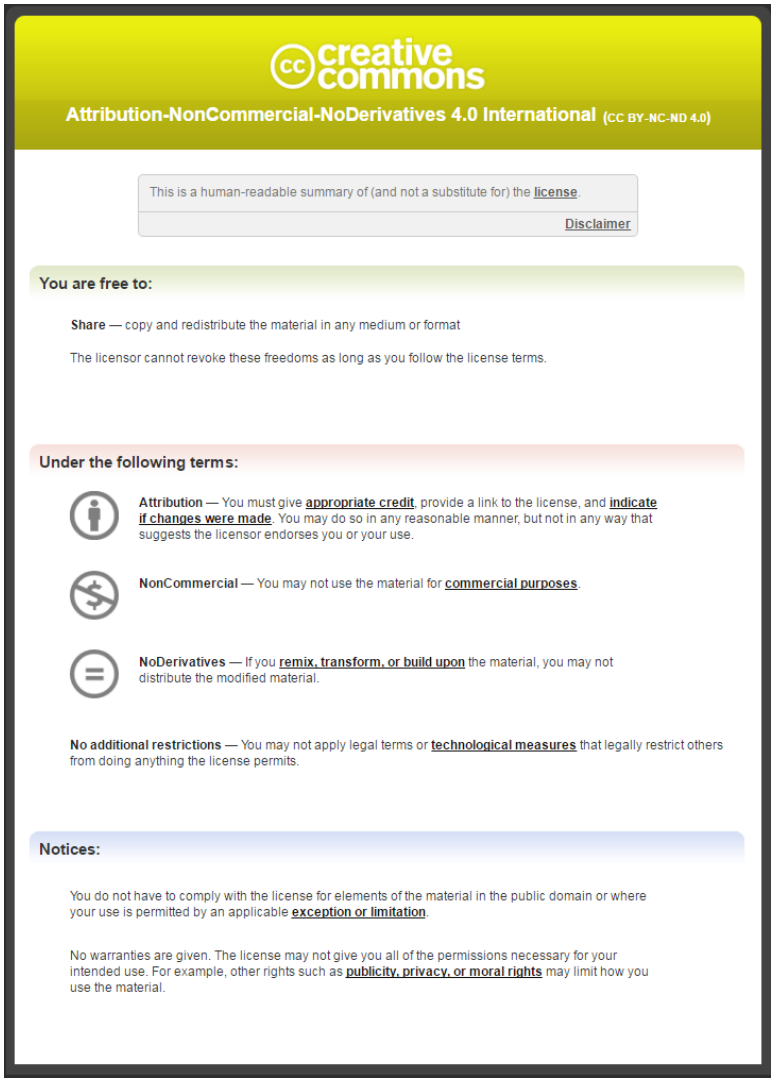

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