

Understanding the NIH Review

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Research Office

NIH Review Process

- Grant Application Submitted by PI
 - 1st electronic checkpoint: Grants.gov or Assist
 - 2nd electronic checkpoint: NIH eRA Commons
- Scientific Review Groups (SRGs) – first level of review recommendations based on **scientific and technical merit**
- National Advisory Council – second level of review consider reviews and **IC's goals and needs**
- IC Director - makes final funding decisions
- Budget office – financial review
- Expect 1 year (min) from submission to award



NIH Review Criteria

Criteria	Explanation
Overall Impact	Sustained, powerful influence to NIH, field, humanity
Significance	Problem of importance; likely to advance knowledge; effect on field of concepts & methods
Investigator	Well trained? Credible? Appropriate for work proposed? Bring & integrate experts to fill in gaps
Innovation	Aims, approach, methods, or topic is novel
Approach	Theoretical framework, exp. design, methods appropriate & integrated; aims are original
Environment	Scientific, professional, and institutional aspects that lead to success



Overall Impact

The likelihood for the project to **exert a sustained, powerful influence** on the research field(s) involved by

- Spelling out benefits to field, to NIH mission, to human health
- The combined weight of the five core review criteria
- Additional review criteria (as applicable)
- Address this everywhere
 - **Project Summary**
 - **Specific Aims**
 - **Research Strategy**



Core Review Criterion #1

SIGNIFICANCE

- Does this study address an important problem?
- If the aims are achieved, how will scientific knowledge be advanced?
- What will be the effect on concepts or methods that drive this field?
- Address this in
 - Project Summary
 - Specific Aims
 - **Research Strategy – Significance Section**



Significance

Core Review Criterion #2

INVESTIGATOR

- Are the investigator(s) appropriately trained and **well suited** to carry out this work?
- Is the work proposed **appropriate to the experience level** of the PI and other researchers?
- Does the investigative team bring **complementary and integrated expertise** to the project (if applicable)?
- Address this in
 - Biosketch
 - Personal Statement
 - Letters of Support

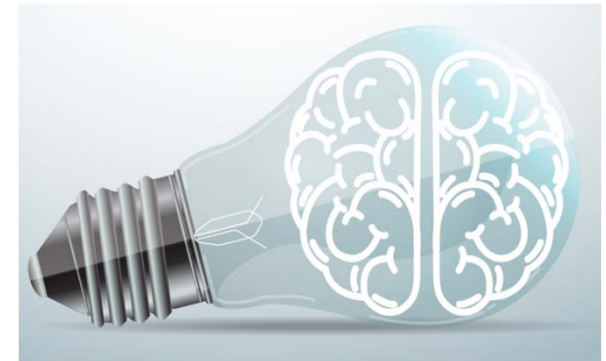


Who am I?

Core Review Criterion #3

INNOVATION

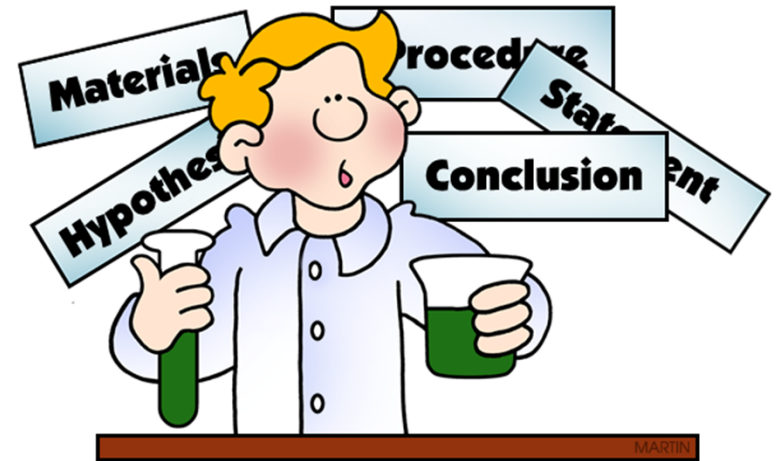
- Does the project offer novel concepts, approaches or methods?
- Are the **aims** original and innovative?
- Does the project **challenge existing paradigm, methodology, or technology?**
- Address this in
 - Project Summary
 - Specific Aims
 - **Research Strategy – Innovation Section**



Core Review Criterion #4

APPROACH

- Are the conceptual framework, design, methods, and analyses adequately developed, **well-integrated, and appropriate** to the aims of the project?
- Does the applicant acknowledge **potential problem areas** and consider **alternatives**?
- Are the **aims original and innovative**?
- Address this in
 - Project Summary
 - Specific Aims
 - **Research Strategy – Approach Section**



Core Review Criterion #5

ENVIRONMENT

- Does the institution's **scientific environment** contribute to the probability of success?
- Do the proposed experiments take advantage of **unique features** of the scientific environment or employ useful collaborative arrangements?
- Is there evidence of **institutional support**?
- Address in
 - Facilities and Other Resources
 - Biosketch, as appropriate



Other Review Considerations

- Human subjects (requires another section in the Research Strategy)
- Animal care and use
- Biohazards
- Select agents
- Model organism sharing plan
- Data sharing plan
- Resubmission/renewal/revision
- FOA-specific review criteria

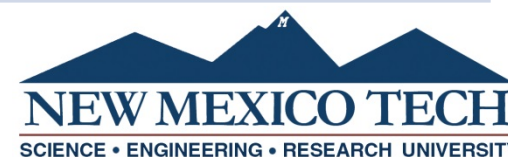


Align Proposal with Review Criteria

Review Criteria	Sections Reviewers Look
Overall Impact	Project Summary Specific Aims Research Strategy
Significance	Project Summary Specific Aims Research Strategy
Investigator	Biographical Sketch “preliminary studies” in Strategy
Innovation	Project Summary Specific Aims Research Strategy
Approach	Project Summary Research Strategy
Environment	Facilities & Other Resources Biosketch(es)

NIH Scientific and Technical Review Scores

Score	Description	Additional Guidance on Strengths/Weaknesses
High Impact		
1	Exceptional	Exceptionally strong with essentially no weaknesses
2	Outstanding	Extremely strong with negligible weaknesses
3	Excellent	Very strong with only some minor weaknesses
Medium Impact		
4	Very Good	Strong but with numerous minor weaknesses
5	Good	Strong but with at least one moderate weakness
6	Satisfactory	Some strengths but also some moderate weaknesses
Low Impact		
7	Fair	Some strengths but with at least one major weakness
8	Marginal	A few strengths and a few major weaknesses
9	Poor	Very few strengths and numerous major weaknesses



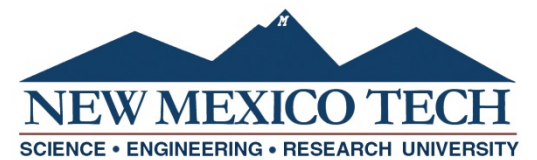
How to Read the Review Comments

Criteria	#1	#2	#3	Average
Overall Impact	3	3	2	2.6
Significance	2	2	2	2
Investigator	1	2	3	2
Innovation	4	3	4	3.6
Approach	2	2	3	2.3
Environment	2	2	4	2.6

Do the same with the comments.

Cut and paste the comments from each criteria together to get a feel for what the comments are for each criteria.





Research Office

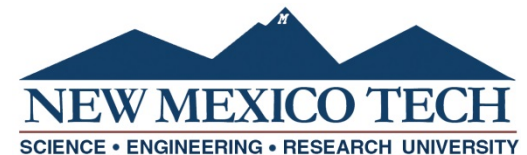
Top 10 Common Reviewer Comments

#1: No **clear hypothesis** or **well defined goals**

- Provide focused hypothesis and objectives
- If not hypothesis driven, what is/are the overall goal(s)?
Solving a problem, answering questions, developing a gizmo?

#2: **Specific Aims do not test the hypothesis**, or the Specific Aims **depend** on results from previous aims

- The best proposals have independent specific aims that address hypothesis using different approaches
- Aims should stand alone and not depend on each other



Top 10 Common Reviewer Comments

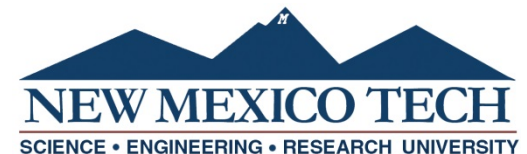
#3: Merely descriptive; **not mechanistic**

- In general, do not propose correlative or descriptive* studies. Most aren't the Human Genome Project
- Do not propose general observations – **propose specific manipulations**, tests of hypotheses, methods development and validation, etc.

#4: **Not appropriate** for the grant mechanism

- R21 is NOT R01
- Career Development Award (K) is NOT a Research Project Grant (R)
- Bark up the right tree; contact Program Officer

*Must be high-impact, critical-need to fly with NIH



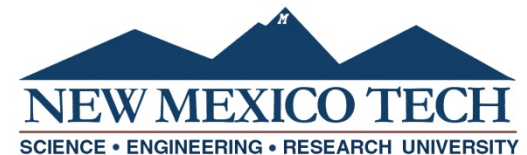
Top 10 Common Reviewer Comments

#5: The proposal is **over ambitious**

- Set **realistic goals** for budget and project period
- Limit # of aims. Leave something as the specified target of the next study.

#6: **Preliminary data** is lacking

- Include preliminary data for all aims
- Use prelim data to show capability and validate the concept
- Must propose more than just *confirming* preliminary results



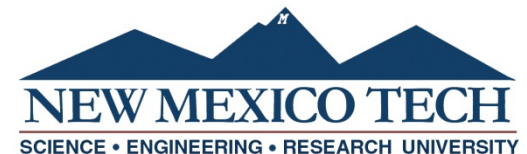
Top 10 Common Reviewer Comments

#7: I'm not convinced **Investigator** can do the experiments

- Show what you can do; don't propose what you can't
- Involve collaborators or consultants for your project
- Show capacity-building trajectory, where appropriate

#8: Background section missing key **publications** and **experimental** findings

- Be sure you have found key references (RePORTer tool)
- Thoroughly describe literature, especially controversial
- Support your views and ideas



Top 10 Common Reviewer Comments

#9: Experimental details, alternative approaches, or how data will be interpreted are **inadequately described**

- Don't assume the reviewers know the methods
- Anticipate problems; provide other alternate paths
- Explain implications of (interpret) various possible results

#10: Not relevant to the **mission** of the Institute

- Don't try to make your application FIT a particular IC
- Take time to find the right IC, program, and solicitation—or go elsewhere



NIH Tools

- Glossary <http://grants.nih.gov/grants/glossary.htm>
- NIH RePORTER <http://projectreporter.nih.gov/reporter.cfm>
- Success Rates http://report.nih.gov/success_rates/index.aspx
- NIH-sponsored Regional Seminars
<http://grants.nih.gov/grants/seminars.htm>
<http://grants.nih.gov/grants/seminars.htm#listserv>
- NIH Guide—announcements, solicitations, etc. <http://grants.nih.gov/grants/guide/>
- Strategy for Obtaining NIH Funding (NIAID)
<http://www.niaid.nih.gov/researchfunding/grant/strategy/Pages/default.aspx>
- Podcasts and transcripts of Videos
http://grants.nih.gov/podcasts/All_About_Grants/

