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“Nail Those Aims!”

NIH Specific Aims Best Writing Practices

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Faculty Panel

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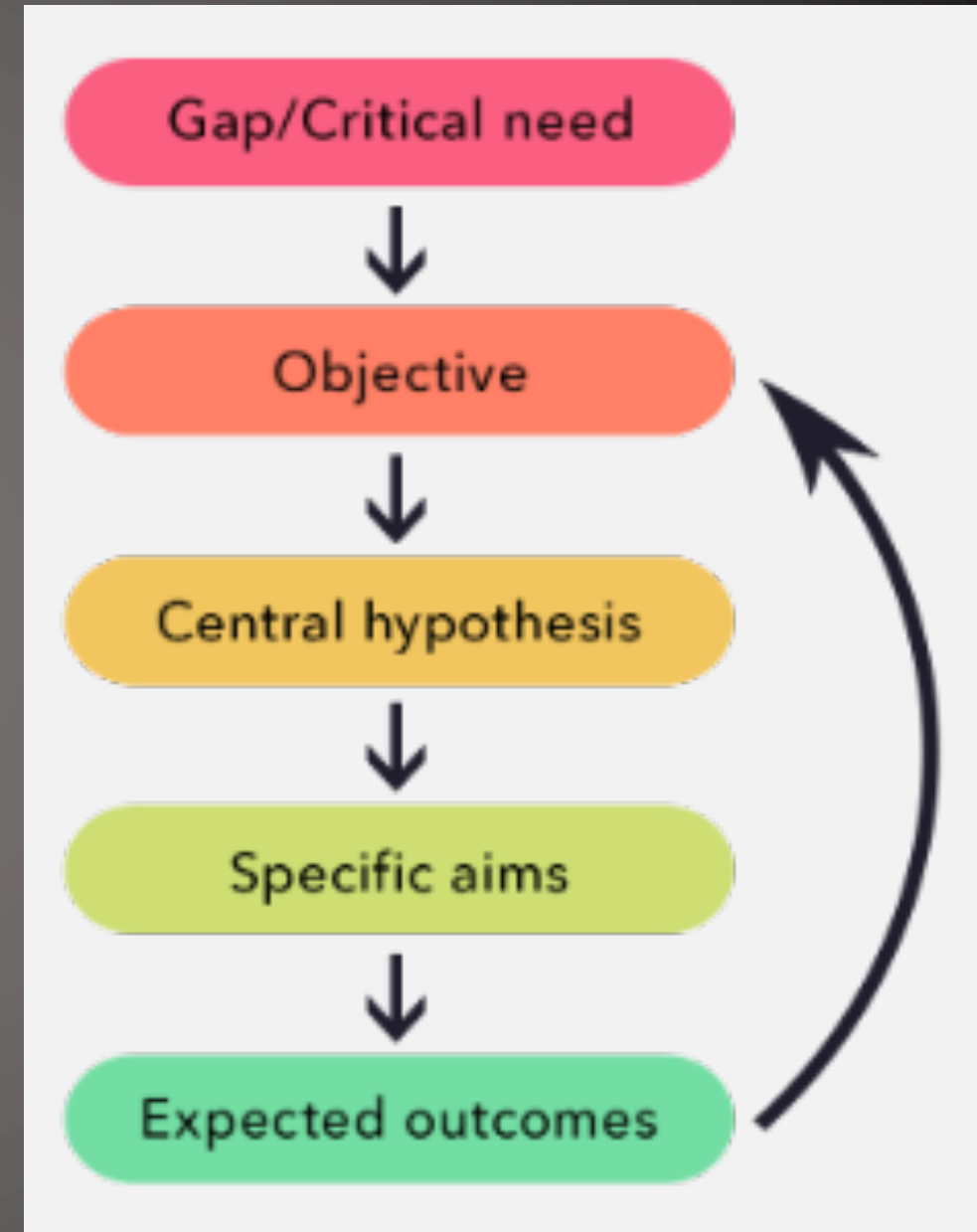
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Objectives

Deconstruct the written structure and writing techniques affiliated with a concise and clearly articulated NIH Specific Aims page

Specific Aims – Why So Critical?

- 1) Proposal first impression
- 2) Facilitates vital pre-submission feedback from:
 - a. Faculty colleagues
 - b. Office of Research Development
 - c. Program Officer

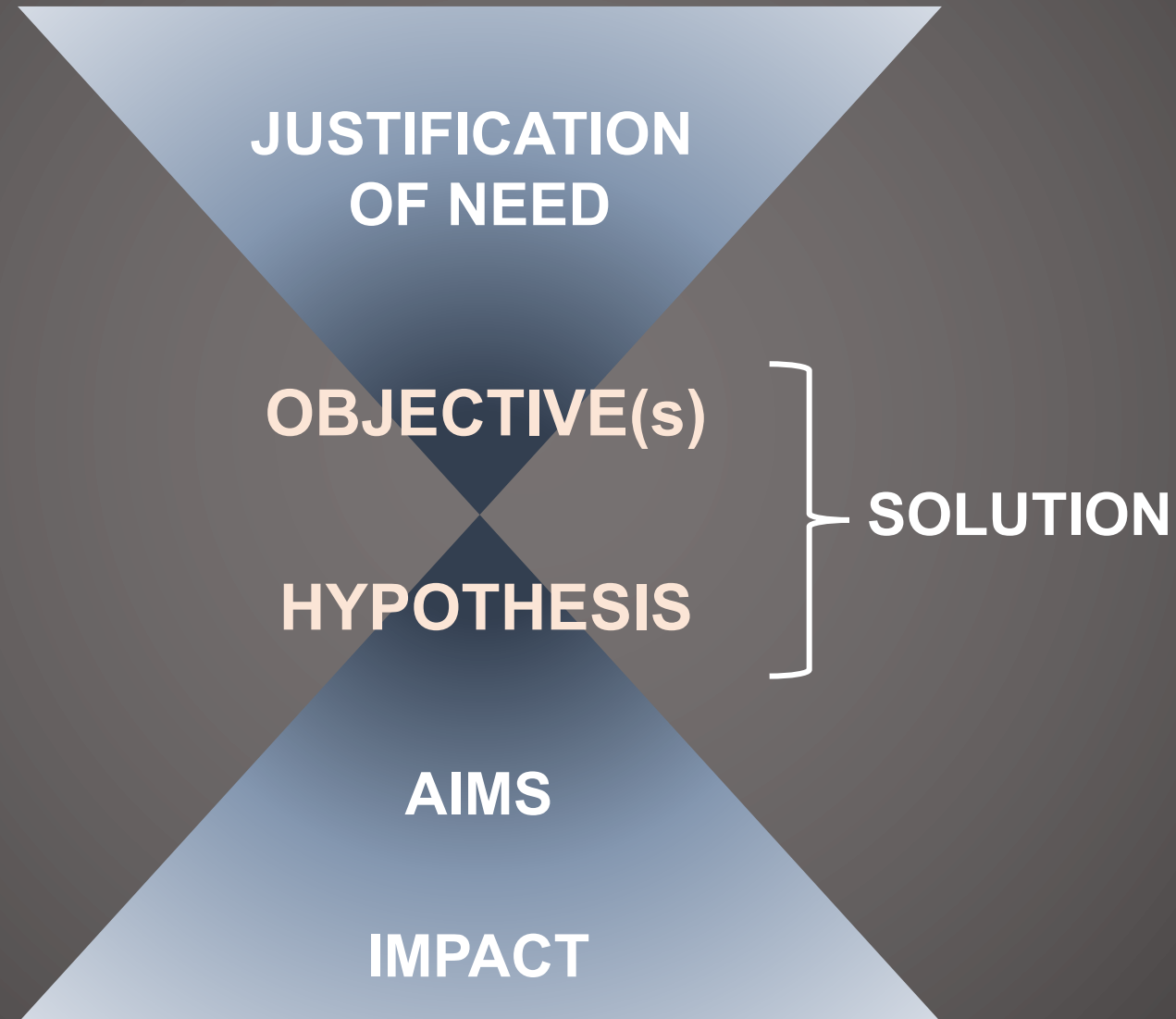


Outline

- 1) Specific Aims Page Architecture
- 2) Intent - Speaking to the Mechanism
- 3) Program Officer First Contact



Baseline Architecture of a Specific Aims Page



Organizing Hypothesis

Central/Organizing hypothesis:

We will test the hypothesis that relationship/mechanism A does or doesn't drive relationship/mechanism B.

Corollaries:

Additional inferences about this mechanism (Specific Aims)

Dos and Don'ts

- State your hypothesis with simple language
- **Point it out!** Draw the reviewer's eye through formatting
- Avoid descriptive hypotheses (e.g. one that would generate diffuse conclusions)

Organizing Hypothesis

DESCRIPTIVE

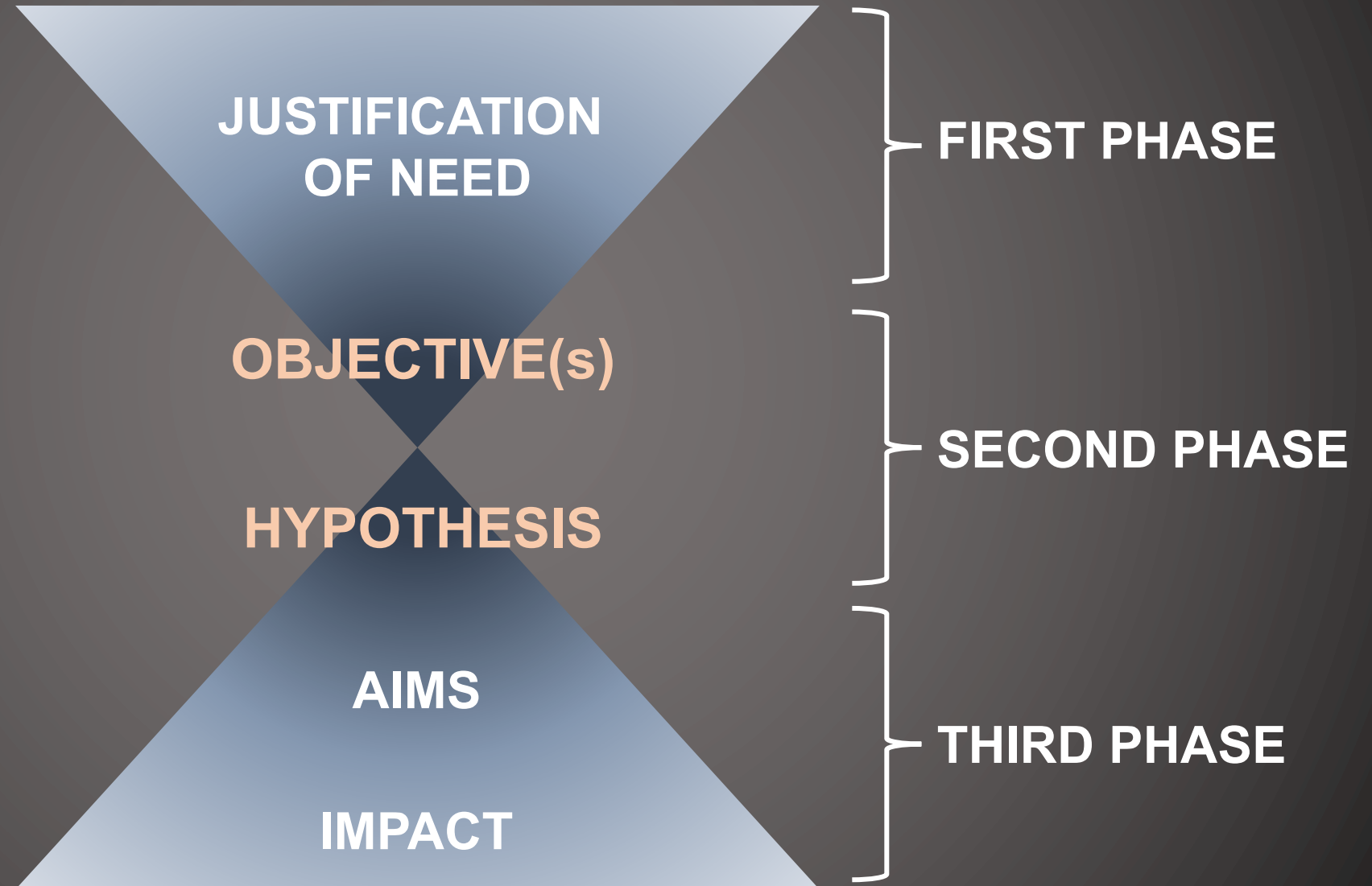
“We hope to observe how retinal nerve growth cones move in the tectum and how this is affected by repulsive cues.”

We PROPOSE to DETERMINE the mechanisms by which retinal nerve growth cones move in the tectum, and how this MOVEMENT is affected by repulsive cues.

We will TEST the hypothesis that X is the mechanism by which retinal nerve growth cones move in the tectum, and that repulsive cues affect growth-cone movement through Y.

MECHANISTIC

Specific Aims Page – Anatomy



Specific Aims Page – Anatomy

FIRST PHASE

- Hook
- Current knowledge
- Gap in knowledge
- Critical need

Example #1 – R03

FIRST PHASE

- Hook 
- Current knowledge
- Gap in knowledge
- Critical need

Chronic rhinosinusitis (CRS) is one of the most common causes of impaired olfaction, including subtypes with and without nasal polyps (CRSwNP and CRSsNP). Although olfactory dysfunction is highly prevalent in patients with CRS, very little is known about its immunopathology and current clinical staging of CRS often fails to correlate with olfactory dysfunction. As a result, impaired smell is often overlooked clinically and remains one of the most troubling and difficult features of the disease to treat.

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Example #2 – R01

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- Hook 
- Current knowledge
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As a result of sustained operations in Afghanistan and Iraq, an increasing number of U.S. military personnel and Veterans are in need of effective pain management treatment. Chronic low back pain (CLBP) is the most common pain condition among returning Veterans and is associated with high levels of opioid analgesic prescribing in VA clinics. Although opioids are effective for acute pain, they are not very effective as a long-term treatment strategy. Furthermore, opioids are associated with significantly increased risk of misuse, addiction, diversion, overdose and death. Consequently, there is a critical need for the development of alternative, effective treatments for CLBP that can be implemented in VA-based healthcare settings.

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Baseline Architecture of a Specific Aims Page

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- Hook
- Current knowledge
- Gap in knowledge
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SECOND PHASE

- *Path to hypothesis*
- *Narrowing context*
- *Goals & objectives*
- *Hypothesis*
- *Successful outcome*

Example #1 – R03

SECOND PHASE

- Hypothesis
- Specific objectives

The overall hypothesis of this proposal is that objective olfactory dysfunction in CRS will correlate with localized, olfactory-specific measures of inflammation and disease severity. This cross-sectional study will perform detailed objective olfactory testing in patients with CRS and relate these findings with refined clinical measures of olfactory-specific disease severity to include the inflammatory cytokine profile of the olfactory cleft, olfactory specific quality-of-life (QOL), and computed tomography (CT) and endoscopic grading of the olfactory cleft.

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Example #1 – R03

SECOND PHASE

- Narrowing context



Prior studies of olfactory dysfunction in CRS have shown few correlations with specific immune or clinical parameters. Investigations of the immune profile have focused upon the presence of inflammatory cells in sinus mucosa, primarily eosinophils, using semi-quantitative techniques such as immunohistochemistry. CT and endoscopic measures of CRS have also been poor predictors of olfactory dysfunction, again, likely because they focus upon measuring severity of inflammation in the paranasal sinuses with no attention paid to the olfactory cleft. Similarly, the most commonly utilized CRS-specific QOL instruments include few if any questions related to olfaction. Thus, it is not surprising that these relatively broad measures of CRS disease severity fail to predict olfactory dysfunction.

Example #1 – R03

SECOND PHASE

- Broad goal
- Successful outcome

The overarching focus of this proposal is to identify clinically- relevant, olfactory-specific measures of disease severity which correlate with objective olfactory dysfunction. Elucidation of these factors will give insight into mechanisms of disease and will allow physicians to better predict which CRS patients will be affected by olfactory dysfunction and subsequently provide prognostic information regarding therapeutic response.

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Example #2 – R01

SECOND PHASE

- Narrowing context 
- Path to hypothesis

Although cognitive behavioral therapy (CBT) is the most widely used, evidence-based, non-pharmacologic treatment for pain, its effects on pain are modest when used in isolation. Enhancing the effectiveness and durability of CBT is critical to providing a viable non-pharmacologic treatment option to the millions of Veterans suffering from chronic pain and reducing their reliance on problematic chronic opioid therapies.

Transcranial Direct Current Stimulation (tDCS) is a novel, minimally-invasive brain stimulation technique that demonstrates analgesic effects when applied over the dorsolateral prefrontal cortex (DLPFC). Accumulating data from our group and others suggest that tDCS may augment the treatment effects of CBT for chronic pain. However, no studies to date have directly investigated potential synergistic effects of combining these therapies.

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SECOND PHASE

- Hypothesis 
- Successful outcome

The proposed study directly addresses this gap in the literature by testing the feasibility and preliminary efficacy of tDCS in combination with CBT to reduce pain (Aim 1) and severity of prescription opioid use disorders (Aim 2) among U.S. military Veterans (including National Guard and Reservists) who have served in Operation Enduring Freedom, Operation Iraqi Freedom or Operation New Dawn (OEF/OIF/OND) with CLBP and co-morbid prescription opioid use disorders. tDCS may prime and modulate prefrontal circuitry resulting in enhanced capacity to tolerate and down-regulate the emotional component of pain experience, while CBT can teach the skills necessary to maintain these gains, thus resulting in a synergistic effect

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Example #2 – R01

SECOND PHASE

- Specific objectives

The primary objective of the proposed Stage II study is to evaluate the effects of CBT in combination with tDCS in (1) improving pain and functionality, (2) reducing severity of opioid use disorders, and (3) reducing impairment in associated mental health areas (e.g., depression, anxiety, PTSD, sleep). We will also determine the effects of treatment on neural activity in cognitive and limbic brain regions involved in pain regulation using functional magnetic resonance imaging (fMRI), and examine its relationship to opioid use severity. Secondary objectives are to evaluate acute lab-based pain markers and neural correlates of improvement in chronic pain using quantitative sensory testing.

Example #1

SECOND PHASE

- *Hypothesis*
- *Specific objectives*
- *Narrowing context*
- *Broad goal*
- *Successful outcome*

Example #2

SECOND PHASE

- *Narrowing context*
- *Path to hypothesis*
- *Hypothesis*
- *Successful outcome*
- *Specific objectives*

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THIRD PHASE

- Aims
- Impact

Third Phase – Specific Aims

AIM # : To X we will Y

Describe an objective that is related to the hypothesis

Language should be deterministic rather than descriptive

(“test” or “determine” vs. “explore” or “characterize”)

Third Phase – Specific Aims

Anything else?

If you have space...YES!

If you don't...MAKE IT!

One or more of the following:

- 1) Public health-related impact
- 2) Innovation
- 3) Potential for success (consider mechanism intent...)

Intent – Speaking to the Mechanism

Career Development Awards (K-series)

- How will the successful outcome of your research training enable NIH I/C initiatives?

Research Awards (R-series)

- How do your qualifications, unique strengths of your multi-disciplinary team, and/or environment support your potential for research success?

Program Officer – First Contact

What they can offer you:

- Advice on I/C & FOA fit
- Advice on alternative avenues

What you can offer them:

- How your research advances their mission

Section VII. Agency Contacts

We encourage inquiries concerning this funding opportunity and welcome the opportunity to answer your questions.

Application Submission Contacts

eRA Service Desk (Questions regarding ASSIST, eRA Commons registration, submitting and tracking applications, due date, post submission issues)

Finding Help Online: <http://grants.nih.gov/support/> (preferred method of contact)

Telephone: 301-402-7469 or 866-504-9552 (Toll Free)

Grants.gov Customer Support (Questions regarding Grants.gov registration and submission, document uploads, etc.)
Contact Center Telephone: 800-518-4726

Email: support@grants.gov

GrantsInfo (Questions regarding application instructions, review process, finding NIH grant resources)

Email: GrantsInfo@nih.gov (preferred method of contact)

Telephone: 301-945-7573

Scientific/Research Contact(s)

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Kelli A. Oster

National Institute of Nursing Research (NINR)

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Email: osterk@mail.nih.gov

Program Officer – First Contact

Suggested Outline:

- 1) Send polished aims & biosketch by email
- 2) Set a time for a follow-up phone-call discussion
- 3) Prepare for said phone-call

Tips:

- 1) Research the I/C
- 2) Prepare questions that will encourage discussion
- 3) Be professional!

Final Tips and Suggestions

- Don't be afraid to write
- Start early, plan breaks, and get feedback



Resources for Today's Presentation

CLIMB (Collaborative Learning & Integrated Mentoring in the Biosciences)
Northwestern University

<http://www.northwestern.edu/climb/resources/written-communication/index.html>

BioScience Writers: Scientific Editing and Writing Article Library

<http://www.biosciencewriters.com/EditingArticleLibrary.aspx>

Additional MUSC Grant Resources

SCTR Extramural Grant Review Assistance Services

Contact: Dayan Ranwala, Ph.D.

http://academicdepartments.musc.edu/sctr/programs/pilot_projects

SOCRATES/B&BS Meetings

Contact: Katie Henze

http://academicdepartments.musc.edu/sctr/education_training/socrates/

Advancement, Recruitment, and Retention of Women in Science (ARROWS)

Contact: Rachel (Corbett) Simmons

<http://academicdepartments.musc.edu/arrowinitiative/arrows/>

Acknowledgements

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Peggy Schachte

Karen Harper

Lynn Veatch

Faculty Panel

Dr. Chris Davies (College of Medicine)

Dr. Teresa Kelechi (College of Nursing)

Dr. Steven Kautz (College of Health Professions)

Dr. Caroline Westwater (College of Oral Health Sciences)

PEERS Workshop: Specific Aims

APPLICATION DEADLINE: October 11, 2017

http://academicdepartments.musc.edu/research/ord/Research_Education/PEERS/

Who: Junior faculty submitting a K-/R-proposal in 2018

What: Small-group forum for Specific Aims feedback

When: Oct 24 & Dec 5 (two 2 h sessions)

Why: Improve clarity & organization of Specific Aims through writing critique

