

PROPOSAL WRITING SERIES

Hosted by:

***The Division of Research &
Economic Development***

Housekeeping

- Slides from this series will be made available to all.
- The sessions are being recorded and will be posted on the web page of TTaDA and the Office of Research and Economic Development.
- For those joining us online please put questions in the Q and A – we will be monitoring them.
- Resources and supports were outlined from the first in the series from ADRs and Grand Challenge Leads.
- Office of Research and Economic Development assisting in sponsoring this training:
 - John Mihelich John.Mihelich@und.edu
 - Mike Mann Michael.mann@und.edu
 - Justin Berg Justin.allen.berg@und.edu
 - Thomasine Heitkamp thomasine.heitkamp@und.edu
 - Michael Sadler michael.sadler@und.edu
 - Michael Haman Michael.hamm@und.edu



Proposal Writing Series Overview

April 5, 2023, UND Supports for Proposal Writing. Presenters: *President Andy Armacost*, Provost and Vice-President for Academic Affairs, *Eric Link*, Vice-President for Research & Economic Development, *John Mihelich*, and *Associate Deans for Research*.

April 12, 2023, Proposal Writing is a Team Sport. Role of the Grand Challenges in collaborative research efforts. Presenters: *UND Grand Challenge Champions*

April 19, 2023, Proof of Concept Development. What problem are you solving? What is your hypothesis? What is your capacity? What is the relevance? Presenters: *Successful Proposal Writers at UND*

April 26, 2023, Budget Development and Using Novelution. Budget Templates will be provided and how to submit in Novelution will be reviewed. Presenters: *Staff in the Division of Research & Economic Development Pre-Award Office (Research & Sponsored Program Development)*.

May 3, 2023, Aligning Funding Sources with Interests. Presenter: *John Mihelich*, Vice President for Research & Economic Development. Participants will have the opportunity to visit with proposal writers with expertise in topic areas including NIH/HHS/Justice/Energy/Humanities/Defense/NSF. and to engage in a Q and A with Dr. Mihelich.

Why this topic?

- Proposals not funded frequently due to **lack of concept**. Including:
 - Lack of clear topic statement
 - What do you hope to accomplish?
 - What brings you to this topic? Show enthusiasm
 - Use of jargon in concepts that can annoy even the most expert grant reviewers.
 - The research topic/concept does not align with the funding source
 - Repeats existing work (lack of a comprehensive literature review to underscore the need for fully conceptually research). The nothing new review!
 - Budget does not align with the overall concept.
 - Your time frame is manageable.
 - Not multi-disciplinary limits expertise on proof of concept
 - Little or no consideration for DEIA



Presenters:

- Dr. Aaron Kennedy
- Mr. Junior Nasah
- Dr. Susan Felege
- Dr. Crystal Alberts
- Dr. David Flynn
- Dr. Nuri Oncel





Proof of Concept

Aaron Kennedy,

Associate Professor / Graduate Director
UND Dept. of Atmospheric Sciences

Role in Proposal Writing

- I'm a PI... I go from concept → reality
- How do I match up my interests (what I want to do) to what the program/call wants?
- Identify knowledge gaps that need to be addressed. Do I need collaborators?
- Other than help with checking budgets/budget narratives and formal submission, I handle all of my documents/forms.



Know your Audience (Funding Agency)

Establish a relationship with program managers!

- At a conference
 - Say hey- I have an idea that I think fits within your program
 - Have a elevator pitch (minute or two) prepped... helps to be enthusiastic, but PMs know we aren't all extroverted 😊 You should cover: what and why it's novel. Also helps if you have specific questions about a RFP.
- Via email
 - Introduce yourself and ask if you could set up time for a call/zoom.
 - Or... could ask if you can send a whitepaper (~1pg!)



Learn what is funded

Ask to help with a panel or individual proposal reviews

- What parts of the RFP are focused on by the PMs...
- You will learn what separates the must and do not fund... and those stuck in the middle
- When you end up stuck in the middle and funding is a coin flip, personal relationships matter!

When contacting the PM

- Time your email shortly after a competition due date
- Briefly identify your areas of expertise
- Also mention you hope this will help you for future submissions



Creating a Team

Identify what you are capable of doing and what you **WANT** to do

- Colleagues on collaborative proposals have come from getting my name out there via papers/presentations/interactions at conferences. Don't be shy as an early career scientist!
- Meet early and often to discuss the proposal. If call is annual, don't be afraid to postpone submission if the idea isn't quite there yet.



Example (partial) Abstract

Detection and Characteristics of Blowing Snow at ARM Sites

Dr. Aaron Kennedy, University of North Dakota, (Principal Investigator)

High-latitude regions of the globe are subject to adverse conditions during sub-freezing temperatures including snowfall and high winds. When these factors combine, blowing snow (BLSN) can result and these events have significant personal, societal, and economic impacts. Besides these immediate impacts,

BLSN plays an important role in the climate system at these locations. This process is responsible for large hydrological mass balance changes in Antarctica, and has been shown to impact the surface radiation budget. The lofting of snow is also tied to the process of sublimation, and prior studies have found BLSN can impact both the thermodynamic environment and dynamic evolution of the atmosphere. BLSN can also be treated as a problem; the surface-based lofting of snow is not actively included in atmospheric models can be a source of error for measurements, microphysical retrievals, and evaluations of model parameterizations. As a result, BLSN been identified as a challenge to the ARM program.

Observations at ARM sites including the 2nd ARM Mobile Facility (AMF2) at McMurdo Station, Antarctica during the ARM West Antarctic Radiation Experiment (AWARE) field campaign, the permanent North Slope Alaska (NSA) site, and the AMF3 at Oliktok Point, Alaska present an unprecedented opportunity to investigate BLSN events. Using a combination of radar, lidar, and surface measuring instruments along with a blowing snow model and reanalysis data, this proposal will investigate the following questions:

Objective 1: What are the macrophysical properties of blowing snow at ARM sites?

Objective 2: What is the radiative impact of blowing snow events?

Objective 3: What are the causes for BLSN occurrence at ARM sites?

Important for us... not for this program.

Identify the knowledge gaps and the impacts it has on the program... comes from lit review and homework (interaction with the agency!)

Show some excitement

Clearly state the objectives



Proof of Concept Junior Nasah

Associate Director

Institute for Energy Studies

College of Engineering and Mines

The Concept



The Novel Idea

- This is the unique, innovative, exciting idea that you believe warrants funding, aka the elevator pitch!
- Examples include: Direct-Air-Capture, Electric planes, DEI initiatives
- This is very important, but it is not enough for funding success!

Formulating the Novel Idea into a Concept (Innovation)

- This is the “meat-to-the-bones” where you identify the merits and limits of the idea
- Here the novel idea becomes a concept! This step is iterative with activities in next slide

Addressing both is first step for a proposal

Funding your “Proof-of-Concept”



If going for existing funding opportunities that fit your idea:

1. What is the problem the funding call topic seeks to address? Why is the problem significant? References in the call are a great starting point.
2. What is the current state-of-the-art (SOA) or approach to mitigating the problem?
3. Is your proposed solution incremental, or, significant to the SOA and funding call?
4. Does the problem align clearly with the mission/goal of funding agency? If no, can your novel-idea bridge the gap?

Proposal Team

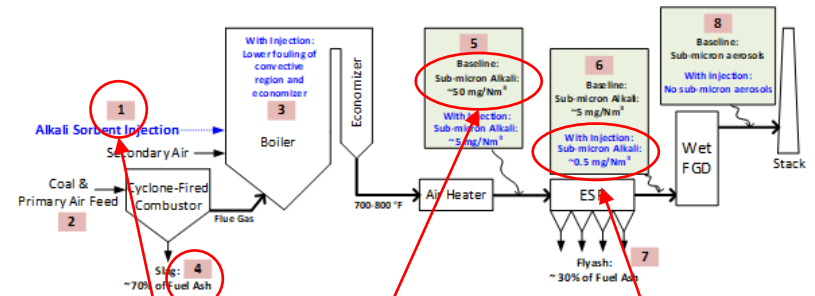


- With the answers above, you can identify candidates for your core technical team
- Next, your focus should be your scope of work:
 - What should you do, and how to do it, to prove your concept?
 - This will help you finalize your technical team by identifying weaknesses in project execution
- With (1) Your concept fleshed out, (2) the problem statement and competition defined, (3) the value your idea brings, and (4) the Scope of work outlined, now the writing, budget development, timeline etc. become clear.
- For actual writing, I usually go (4) → (1) → (2) → (3)

The Writing

- For technical reviewed proposals, do not assume the reviewer is knowledgeable of your solution
- Early in document (first page possibly):
 - Highlight the problem,
 - How your concept is novel in addressing the problem,
 - What significant improvements are expected?
 - What incremental benefits, and how do you spin it to be positive
 - Visual aids can be powerful in doing this
- Follow instructions regarding the merit review criteria
- Grammar

{The proposed technology comprises injection of sorbent of a select composition and physical characteristic into a targeted boiler region in low quantities to capture vapor phase alkali into larger-sized particles mitigating each of the above negative impacts. The selected sorbents are mechanically processed on-site to achieve the desired physical characteristics and then injected into the flue gas stream. The boiler regions that are targeted are based on computational fluid dynamic (CFD) models to ensure maximum coverage targeting the problem regions. Figure 1 is a schematic demonstrating our strategy.}



Listed baseline performance

Annotated diagram to facilitate description of technology in text

Listed baseline performance



Proof of Concept

Susan Ellis-Felege

Professor, UND Dept. of Biology
College of Arts and Sciences

Funding Sources

- Wildlife Ecologist (applied research)
 - Generally, work on birds and apply technology
 - Problem solver
- Funding Sources:
 - State agency (e.g., ND Game and Fish, MN Dept of Natural Resources, ND Dept of Commerce, ND DOT)
 - Federal (e.g. Dept of Defense, Dept. of Interior, Dept of Ag, FAA, NSF)
 - Not-for-profit (e.g., Ducks Unlimited, ND Natural Resource Trust)
 - Industry (e.g., Microsoft, Airtonomy, Apex Clean Energy)
 - Foundation



Role in Proposal Writing

- PI (95%), co-PI (~5%)
- Do it all
 - Idea to submission (and running funding)
 - Favorite part: creatively finding how I can use my interests/skills to meet needs of funding agency
 - Build proposals addressing funder's needs while incorporating my desire to learn more that pushes boundaries
 - Integrate current needs and future directions into each proposal



Success and Collaboration

Strategies

- RELATIONSHIPS
 - Listen!
 - Ask questions
 - Be a resource
 - Learn their obstacles/barriers
 - Follow the directions/keywords
 - Sell your idea
- Small \$\$ leads to Big \$\$
 - Deliver (success begets success)
 - Credibility building
 - Disseminate findings
 - Multiple audiences
 - Pipelines!
- Think creatively about your expertise
 - More applications to our work than may appear at first
 - Step out of comfort zone
 - Look in unconventional places for \$\$

Collaboration

- Build teams around your strengths and weaknesses
 - What can you do?
 - What do you need help with?
- Characteristics I seek
 - No asshole rule
 - Limit the team (productive people)
 - Demonstrated track record
 - Time management
 - Deliver!
 - Passionate
 - Boundary pushers
 - Not afraid to fail/risks
 - Perceived atypical collaborations



Proof of Concept Crystal Alberts

Professor / Director, UND Writers Conference
Department of English (College of Arts &
Sciences)

Funding Sources

- **Academic Areas of Specialization:**
 - US Literatures & Cultures, Post-1945 to Present
 - Digital Humanities (specifically, preserving and digitizing unique archival materials for free, open access use*)
- **Funding Sources (note most agencies allow only 1 UND app per year):**
 - **Federal:** National Endowment for the Humanities (NEH), National Endowment for the Arts (NEA)
 - **State:** Humanities North Dakota (HND) (max. award \$10K), North Dakota Council on the Arts (NDCA) (max. award \$4K)
 - **Local:** Community Foundation (City re-grant funds), Greater Grand Forks Visitor & Convention Center
 - **Private donors** (in collaboration with the UND Foundation Development officers)

*When copyright permissions have been cleared and/or formal, written agreements have been reached with tribal communities (Business Council, Tribal Historic Preservation Officers, Elders Council, and/or spiritual leaders)



Role in Proposal Writing

- **Principal Investigator (PI)**

- I also go from “concept” (whether event/staged creative production or research) to making it happen.
- Other than pre-award budget/narrative checks & final financial reports, I do/submit ALL. THE. THINGS.

- **Co-PI:**

- Collaborative NEH award with Nueta Hidatsa Sahnish College (Mandan, Hidatsa and Arikara Nation).
- ***Relationship building; true cooperation; avoiding extractive, one-off research, including abandoning or significantly modifying settler colonialist methodologies.***
- Responsible for all UND-side paperwork, including subaward.

- **OPP (Other Peoples’ Projects)**

- **Senior Personnel (back in the day, when I was earlier career)**
- ND EPSCoR, Communication for CRC; Technical Editor, NEH (PI, Sandra Donaldson).

- **Reviewer**

- Reviewed applications at the federal, state, and internal level



The “Concept”

Long-standing, yearly funding

• **UND Writers Conference**

- 55 years & counting...but no guaranteed funding to cover operating budget
- New theme & authors each year, but the “concept,” or the event, remains mostly the same
- Work with other departments, programs and/or entities to select authors/artists
- Monitor changes in guidelines (page and character count), deadlines, and eligible expenses.
- Shift general template narrative to match each audience
- Submit internal white paper and F&A waivers/reductions (de minimus 10% rather than 35%)

• **Mentorship**

- Often use these grants to teach colleagues, graduate students, and undergrads about grant-writing and how to be a PI

New projects

• **Chicken or the egg?**

- Funding is scarce for Arts & Humanities.
- *Our ideas are often not eligible for any funding, but if \$\$ appears, we can think of something that is interesting to us AND that meets the call / prioritized initiative*

• **Motives & Motivation**

- Do you care about this project? Why?

• **Partnerships & Collaboration**

- Relationships & trust are not built in a one-hour Zoom.
- Respect different processes, approaches, knowledges, and standards.
- Create a productive team dynamic & include people who can do more than talk.

More than Words...

Do this...

- **Know your audience** (federal agencies want a national benefit; state agencies want more than just UND or GFK)
- **Make sure it's unique & explain why they should care**
- **Use the agency's own language** (title or abstract, may be one of the only things they read)
- **Create a thoughtful, justified budget** (again, may be one of the only things they read; get it right & do the research on costs)
- **Have a Data Management Plan** (public \$\$ = public data; talk to Zeineb Yousif)
- **Literally show a proof of concept:** (Create a prototype, share previous results, or demonstrate access to materials)

...Not that

- **Never, EVER include funds to pay the PI on the budget** (whether explicitly prohibited or not, PIs on A&H grants DO NOT GET PAID)
- **"About them without them"** (if you're working on DEIA initiatives, then someone from that in-group better be co-PI and/or senior personnel)
- **Use acronyms, jargon or unclear language** (the same word means different things in different fields, ask a colleague you know outside your field or even the Writing Center to assist)
- **Take the one UND application, when you know your project isn't viable or going to be competitive** (A&H competes against each other for very little, so don't be "that [expletive] guy")

“Abstract” (Humanities Style):

“Strengthening & Preserving the Mandan, Hidatsa and Arikara Nation’s Humanities Infrastructure”

Guidelines

- “The American Rescue Plan: Humanities Organizations program invites applications from eligible organizations ***seeking support for humanities positions and projects that have been adversely impacted by the coronavirus pandemic.***”
- “**NEH’s A More Perfect Union initiative** encourages projects that explore, reflect on, and ***tell the stories of our quest for a more just, inclusive, and sustainable society throughout our history.*** NEH especially welcomes projects that bring the perspective of the humanities to questions of racial justice, gender equality, the evolution of the American landscape, as well as America’s place in the world. ***Projects that strengthen Americans’ knowledge of our principles of constitutional governance and democracy are strongly encouraged, as are projects that address the experiences of Native Americans and other under-represented communities.*** In addition, NEH welcomes projects that develop innovative approaches to ***sustaining the nation’s humanities infrastructure and preserving its historical record.***”

“Project Description” (Short)

- Funds will enable a collaborative project between the University of North Dakota and Nueta Hidatsa Sahnish College, tribally chartered by the Three Affiliated Tribes of the Fort Berthold Reservation. ***We will rehire humanities instructors/staff directly impacted by the financial repercussions of the pandemic at UND and will provide training in digital humanities preservation to faculty, staff, and students at NHSC. Faculty, staff, and students at UND will build and expand digital collections related to the Mandan, Hidatsa, and Arikara Nation for historical and educational purposes. At NHSC, the team will conduct oral interviews with elders, as well as inventory, preserve, and digitize critically endangered languages resources, and other at-risk traditional knowledges. The teams will also facilitate the creation of freely available teaching materials in line with the new state law mandating Native American education and NEH’s special initiative to help create “a more perfect union.”***



Proof of Concept

David Flynn

Professor & Clow Fellow,

Department of Economics & Finance

Research Director, Institute of Policy & Business Analytics

Research Areas and Funding Agency Experience

Research areas

- Economic contribution to demographic processes
- Economic and demographic consequences of natural disasters
- Fiscal policy
- Economic and demographic forecasting and predictive analytics
- Regional economic growth and development

Funding Agency Experience

- US Department of Transportation
- US Department of Energy
- US Economic Development Agency
- National Endowment for the Arts
- ND Department of Commerce
- Proposal reviewer for NSF

It starts with an idea

- Every proof of concept needs to start with that first idea.
- **Typical starting point: I observe a problem and I try to understand it.**
- Getting to “understanding” might require funding.
 - Data collection
 - Interview/focus groups
 - Your time
- Two aspects you must consider all the time:
 - **1) Is it interesting?**
 - **2) Is it feasible?**



Your Key Question

- You must have a specific, well-defined question you hope to answer.
- You also need to provide broader context for your narrow topic.
 - Is there a literature related to your topic?
 - Why or why not?
- Sometimes context is defined by the agency, sometimes it is up to you.
 - Do not be afraid to consider outside connections.
 - A key part of context is asking *cui bono*?
 - Do we have people at UND that published in the area before?



Can we do it?

- Capacity building in an iterative process.
- Doing this well might mean looking beyond our own, or closely aligned, disciplines.
 - Think about assets and resources across the entirety of UND.
- ***You need to consider the complete set of requirements for a successful proposal too.***
- Build as much detail about work performance into the proposal at the start.
 - Example: Benefit-cost analysis (something the IPBA does) looks much better explicitly built into the proposal instead of a dollar amount with no personnel assigned to it.



Proposals that hit the mark

- **Your proposal needs to set itself apart.**
- **Highlight the assets: you, UND, North Dakota?**
- There are more proposals mentioning interdisciplinary research than ever before.
 - It still needs that sharp, focused idea, but you need the broader context and capacity to win funding.
- Do not be afraid to:
 - Shop ideas around for feedback or collaborations.
 - Consider new areas you passed on before,
 - Think Big and Persevere!





Proof of Concept

Nuri Oncel

Professor / Interim-Director, UND Nanofoundry
Department of Physics and Astrophysics (College
of Arts & Sciences)

Funding Sources

- Experimental Condensed-Matter Physics
 - Diverse research interests from basic material science to applied nanotechnology
- Funding Sources:
 - Federal (e.g. Dept of Defense, NSF, Dept. of Energy)
- Role in proposals: PI, Co-PI, or senior personnel.



Key to success

- Preliminary results
- Solid understanding of the topic
- Reading a lot of literature
- Clear definition of the problem & clear description on how you will address it.
- For collaborations:
 - learn to listen
 - read between the lines
 - don't be afraid to ask questions
 - leave your ego behind
 - no body is trying to steal your idea
- Publish papers in high impact journals
- Reach out to program officers
- Volunteer as a reviewer-a great way to see how people think

