Division of
Molecular and Cellular Biosciences (MCB)

Virtual Office Hours

Welcome!

We will begin at 2pm ET

Request this document in an accessible format by visiting nsf.gov/accessibility

Questions and Answers

Submit your questions via the Q&A box on your screen

- You may elect to submit your question anonymously.
- For specific questions about your project, please contact a Program Director.

Next MCB Virtual Office Hours

July 12th, 2023: Major Research Instrumentation Program (MRI)

MCB Virtual Office Hour

Today's Topic:

Let's Talk Broader Impacts

with Susan Renoe/ARIS

Slides and recordings of past presentations at

https://mcbblog.nsfbio.com/office-hours/2/

(Example: August 10, 2022 – Working with an NSF Program Director)

Let's Talk Broader Impacts

Dr. Susan D. Renoe

Executive Director, ARIS

Associate Vice Chancellor for Research, Development & Strategic Partnerships
Assistant Professor of Strategic Communications, University of Missouri

ARIS

Advancing Research Impact in Society

researchinsociety.org

@ARISImpacts

Today's Objectives

- Gain a better understanding of how to develop and evaluate an effective BI plan
- Know where to go for BI resources, partnerships and support
- Transform your way of thinking about BI

  This work is supported by the National Science Foundation under grants OIA 1810732, OIA 2140950MCB 1940655, and MCB 2236057..

What *is* **Broader Impacts**?

All NSF proposals are evaluated on two criteria...

INTELLECTUAL MERIT

The potential of a project to advance knowledge and understanding within its own field or across different fields

BROADER IMPACTS

The potential of a project to benefit society or advance desired societal outcomes

NSF-Suggested *Areas of Impact*:

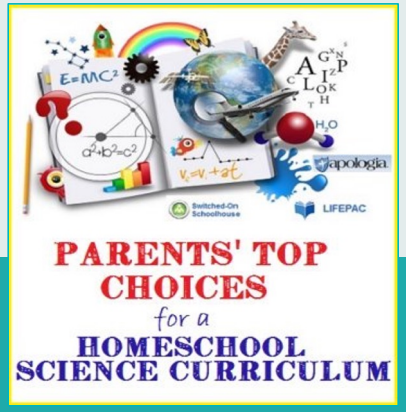
- Full participation of women, persons with disabilities, and underrepresented minorities in STEM
- Improved STEM education and educator development at any level
- Increased public scientific literacy and public engagement with science and technology
- Improved well-being of individuals in society
- Development of a diverse, globally competitive STEM workforce
- Increased partnerships between academia, industry, and others
- Improved national security
- Use of science and technology to inform public policy
- Increased economic competitiveness of the United States
- Enhanced infrastructure for research and education

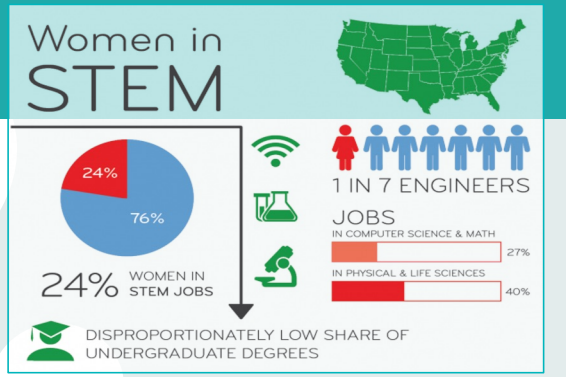
- Your research CAN BE the broader impact
- BIAs can be directly related to your project
- BIAs can be supported by or complementary to the project

“The BEST broader impacts plans are seamlessly integrated into the research.”

Creating an Effective BI Plan

What does BI look like?





According to the NSF…

- A well-written BI section should include activities that are clearly described, have a well-justified rationale, demonstrate creativity or originality OR have a basis in established approaches
- The proposer should have a well-organized strategy for accomplishment of clearly stated goals; establish the qualifications of those responsible for the activities; and demonstrate sufficient resource for support
- A plan should be in place to document/assess results

Elements of a Comprehensive BI Plan

1. A Statement of the Broader Impacts of Your Research
2. The overarching goal of your BI Plan—what do you hope to accomplish?
3. A demonstrated need or gap supported by data and/or scholarly references;
4. Activity(ies) and measurable objectives that are evaluable
    a) Details, such as target audience, recruitment strategy, and descriptions of the activity;
    b) Identified partners (if applicable) and how they will participate in your proposal;
    c) Timeframe for implementation and completion
5. Evaluation of your broader impacts activities
    a) How you will measure impact
    b) Who will conduct evaluation activities
6. Timeline of work
    a) BI Activities do not necessarily need to occur every year of the grant
    b) Development, Implementation, and Evaluation are all useful uses of time
7. Budget

BI collaborators are important!

- Collaborators can add expertise, time and money
- Build partnerships and ***include partners from day one***: *their input is essential.*
- Develop a long-term, sustainable plan with your partner(s)
- Letters of collaboration

Examples of Potential BI Resources & Collaborators

- STEM Learning Center
- Cooperative Extension
- Undergraduate Research Office – REUs, MARC, etc.
- Evaluation: Office of Instruction and Assessment, CTL, School of Ed
- Local museums, science/technology centers, zoos, aquaria, nature centers, etc.
- Local schools, after-school programs; STEM summer camps
- Boy Scouts/Girl Scouts, 4H, FFA
- Local Science Cafés; Farmers Markets; County Fairs
- OLLI; Local senior centers
- BROADENING PARTICIPATION: SACNAS; NSBE; AISES; WISE; Disability Resource Center, LGBTQ Affairs Office

Think evaluation from the beginning

- Activities should have measurable objectives
- Objectives should be evaluated feasibly
- Evaluation partners should be named, if applicable

Logistics are important! Prepare a timeline & budget for BI

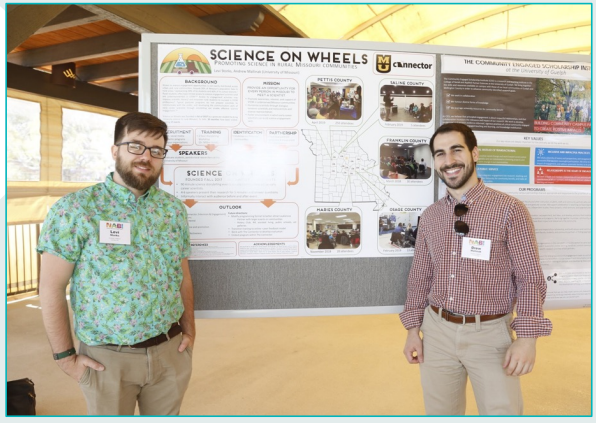
- How soon should I start developing my BI plan?
- How much budget should I allocate?
- Should I include a timeline in my proposal?

BI Resources

Mission

ARIS's mission is to amplify the impacts of research for the benefit of society. To do this, ARIS:

- Serves as the hub for expertise in and the promotion of research impacts.
- Advances scholarship, builds and stewards a growing field of practice and community of professionals, across academic, educational, governmental, corporate, and non-profit institutions and agencies, focused on the impacts of research.
- Supports investigators from diverse fields ***and*** the professionals and partners who collaborate with them to achieve societal impact.
- Partners with the National Science Foundation and other U.S.-based and international organizations, aligned to ARIS's vision to prioritize research impacts for societal benefit.



Advancing Research Impact in Society

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Strategic Initiatives

Program to Enhance Organizational Research Impact Capacity (ORIC)

- Institutions and organizations participating in this year-long program receive training, resources and mentorship that will allow them to substantially enhance their internal capacity to support research impact

ORIC 2020-21 Pilot Cohort	ORIC 2021-2022 Cohort	ORIC 2022-23 Cohort
Purdue University	University of California Merced	Baylor University
Berkeley University of California	The University of Vermont	Montana State University
University of Idaho	Northern Illinois University	University of Nevada, Reno
University of Nebraska Lincoln	The Ohio State University	VIMS Virginia Institute of Marine Science, William & Mary
Michigan State University	University of the Western Cape	Texas A&M University Corpus Christi
	Mississippi State University	The University of Chicago
		Tulane University
		Texas The University of Texas at Austin
		Indiana University Bloomington

ORIC is serving institutions

"I think the ORIC program has allowed us to make a lot of progress in analyzing our current environment, ***putting into place new strategies and mechanisms to support researchers****, and aligning programs and initiatives."*

"The ORIC training has already served me very well in ***assisting faculty*** *as they choose and communicate with prospective partners!"*

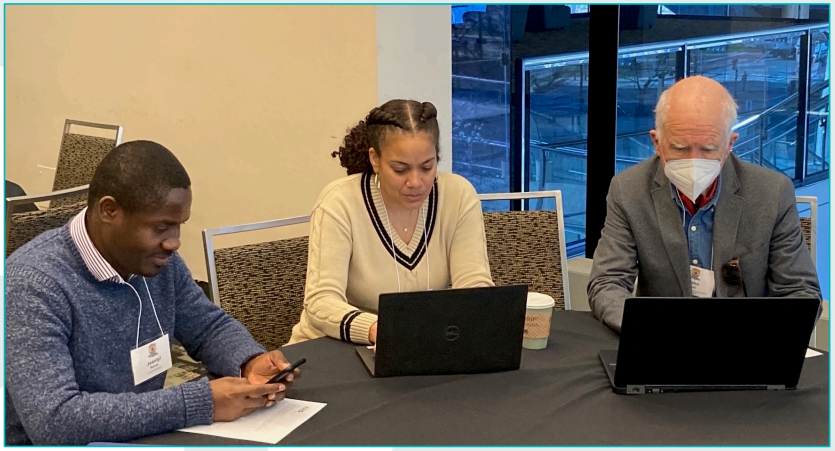
ORIC is serving individuals

"The ORIC program has provided me with great opportunities to think more creatively about BI and has prepared me to ***be a better and more effective BI professional****. It has provided a blueprint to create better institutional capacities."*

Strategic Initiatives

Broader Impacts Certification & MicroCredential

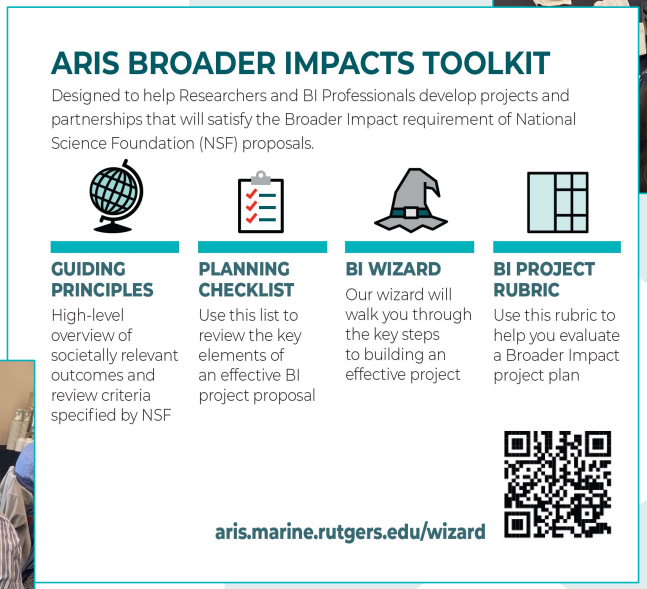
- Participants tested and completed portions of the ARIS Certification Program during the half-day session at 2023 ARIS Summit Pre-conference.
- Module topics include:
  - BI Foundations
  - Writing an Effective BI Plan
  - Faculty Development in BI
  - Building Strong Partnerships
  - Broadening Participation through BI
  - Evaluating BI

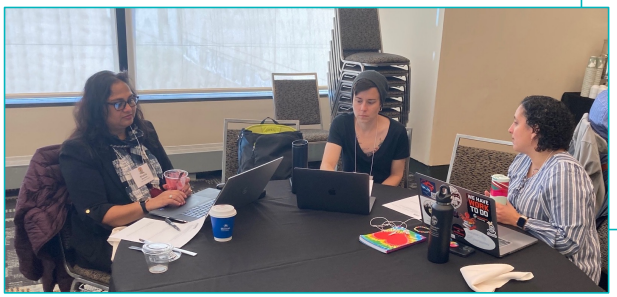


Strategic Initiatives

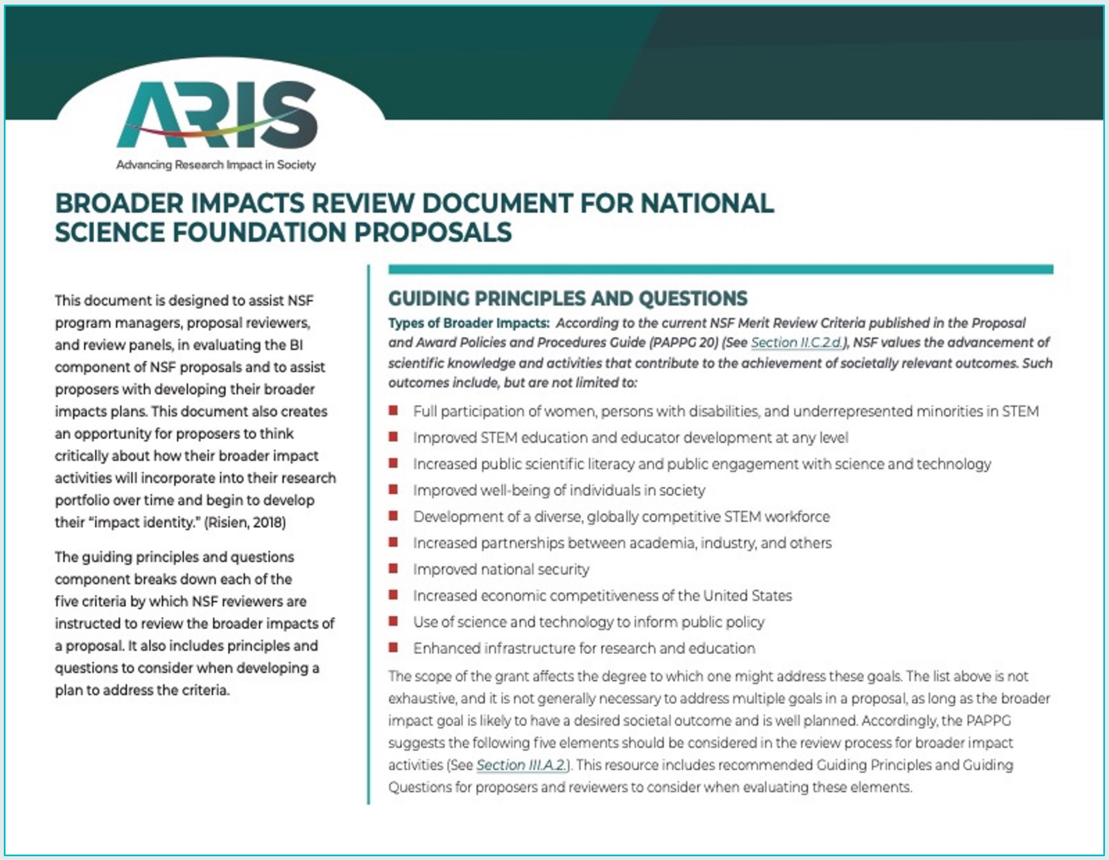
BI Toolkit and Resource Development

- Broader Impacts Review Document for NSF Proposals
- BI Planning Checklist
- BI Wizard
- BI Evaluation Rubric





BI Guiding Principles



ARIS
Advancing Research Impact in Society

BROADER IMPACTS REVIEW DOCUMENT FOR NATIONAL SCIENCE FOUNDATION PROPOSALS

This document is designed to assist NSF program managers, proposal reviewers, and review panels, in evaluating the BI component of NSF proposals and to assist proposers with developing their broader impacts plans. This document also creates an opportunity for proposers to think critically about how their broader impact activities will incorporate into their research portfolio over time and begin to develop their "impact identity." (Risien, 2018)

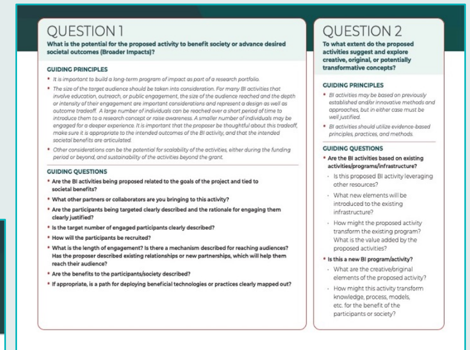
The guiding principles and questions component breaks down each of the five criteria by which NSF reviewers are instructed to review the broader impacts of a proposal. It also includes principles and questions to consider when developing a plan to address the criteria.

GUIDING PRINCIPLES AND QUESTIONS

Types of Broader Impacts: ***According to the current NSF Merit Review Criteria published in the Proposal and Award Policies and Procedures Guide (PAPPG 20) (See Section II.C.2.d.), NSF values the advancement of scientific knowledge and activities that contribute to the achievement of societally relevant outcomes. Such outcomes include, but are not limited to:***

- Full participation of women, persons with disabilities, and underrepresented minorities in STEM
- Improved STEM education and educator development at any level
- Increased public scientific literacy and public engagement with science and technology
- Improved well-being of individuals in society
- Development of a diverse, globally competitive STEM workforce
- Increased partnerships between academia, industry, and others
- Improved national security
- Increased economic competitiveness of the United States
- Use of science and technology to inform public policy
- Enhanced infrastructure for research and education

The scope of the grant affects the degree to which one might address these goals. The list above is not exhaustive, and it is not generally necessary to address multiple goals in a proposal, as long as the broader impact goal is likely to have a desired societal outcome and is well planned. Accordingly, the PAPPG suggests the following five elements should be considered in the review process for broader impact activities (See Section III.A.2.). This resource includes recommended Guiding Principles and Guiding Questions for proposers and reviewers to consider when evaluating these elements.



QUESTION 1

What is the potential for the proposed activity to benefit society or advance desired societal outcomes (Broader Impacts)?

GUIDING PRINCIPLES

- *It is important to build a long-term program of impact as part of a research portfolio.*
- *The size of the target audience should be taken into consideration. For many BI activities that involve education, outreach, or public engagement, the size of the audience reached and the depth or intensity of their engagement are important considerations and represent a design as well as outcome tradeoff. A large number of individuals can be reached over a short period of time to introduce them to a research concept or raise awareness. A smaller number of individuals may be engaged for a deeper experience. It is important that the proposer be thoughtful about this tradeoff, make sure it is appropriate to the intended outcomes of the BI activity, and that the intended societal benefits are articulated.*
- *Other considerations can be the potential for scalability of the activities, either during the funding period or beyond, and sustainability of the activities beyond the grant.*

GUIDING QUESTIONS

- **Are the BI activities being proposed related to the goals of the project and tied to societal benefits?**
- **What other partners or collaborators are you bringing to this activity?**
- **Are the participants being targeted clearly described and the rationale for engaging them clearly justified?**
- **Is the target number of engaged participants clearly described?**
- **How will the participants be recruited?**
- **What is the length of engagement? Is there a mechanism described for reaching audiences? Has the proposer described existing relationships or new partnerships, which will help them reach their audience?**
- **Are the benefits to the participants/society described?**
- **If appropriate, is a path for deploying beneficial technologies or practices clearly mapped out?**

QUESTION 2

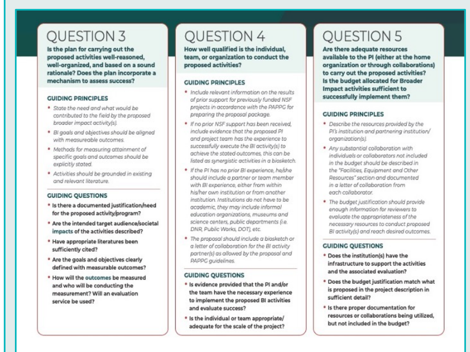
To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?

GUIDING PRINCIPLES

- *BI activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.*
- *BI activities should utilize evidence-based principles, practices, and methods.*

GUIDING QUESTIONS

- **Are the BI activities based on existing activities/programs/infrastructure?**
  - Is this proposed BI activity leveraging other resources?
  - What new elements will be introduced to the existing infrastructure?
  - How might the proposed activity transform the existing program? What is the value added by the proposed activities?
- **Is this a new BI program/activity?**
  - What are the creative/original elements of the proposed activity?
  - How might this activity transform knowledge, process, models, etc. for the benefit of the participants or society?



QUESTION 3

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?

GUIDING PRINCIPLES

- *State the need and what would be contributed to the field by the proposed broader impact activity(s).*
- *BI goals and objectives should be aligned with measureable outcomes.*
- *Methods for measuring attainment of specific goals and outcomes should be explicitly stated.*
- *Activities should be grounded in existing and relevant literature.*

GUIDING QUESTIONS

- **Is there a documented justification/need for the proposed activity/program?**
- **Are the intended target audience/societal impacts of the activities described?**
- **Have appropriate literatures been sufficiently cited?**
- **Are the goals and objectives clearly defined with measurable outcomes?**
- **How will the outcomes be measured and who will be conducting the measurement? Will an evaluation service be used?**

QUESTION 4

How well qualified is the individual, team, or organization to conduct the proposed activities?

GUIDING PRINCIPLES

- *Include relevant information on the results of prior support for previously funded NSF projects in accordance with the PAPPG for preparing the proposal package.*
- *If no prior NSF support has been received, include evidence that the proposed PI and project team has the experience to successfully execute the BI activity(s) to achieve the stated outcomes, this can be listed as synergistic activities in a biosketch.*
- *If the PI has no prior BI experience, he/she should include a partner or team member with BI experience, either from within his/her own institution or from another institution. Institutions do not have to be academic, they may include informal education organizations, museums and science centers, public departments (i.e. DNR, Public Works, DOT), etc.*
- *The proposal should include a biosketch or a letter of collaboration for the BI activity partner(s) as allowed by the proposal and PAPPG guidelines.*

GUIDING QUESTIONS

- **Is evidence provided that the PI and/or the team have the necessary experience to implement the proposed BI activities and evaluate success?**
- **Is the individual or team appropriate/adequate for the scale of the project?**

QUESTION 5

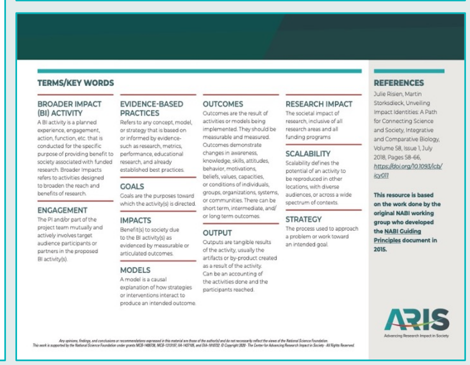
Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities? Is the budget allocated for Broader Impact activities sufficient to successfully implement them?

GUIDING PRINCIPLES

- *Describe the resources provided by the PI's institution and partnering institution/organization(s).*
- *Any substantial collaboration with individuals or collaborators not included in the budget should be described in the "Facilities, Equipment and Other Resources" section and documented in a letter of collaboration from each collaborator.*
- *The budget justification should provide enough information for reviewers to evaluate the appropriateness of the necessary resources to conduct proposed BI activity(s) and reach desired outcomes.*

GUIDING QUESTIONS

- **Does the institution(s) have the infrastructure to support the activities and the associated evaluation?**
- **Does the budget justification match what is proposed in the project description in sufficient detail?**
- **Is there proper documentation for resources or collaborations being utilized, but not included in the budget?**



TERMS/KEY WORDS

BROADER IMPACT (BI) ACTIVITY
A BI activity is a planned experience, engagement, action, function, etc. that is conducted for the specific purpose of providing benefit to society associated with funded research. Broader Impacts refers to activities designed to broaden the reach and benefits of research.

ENGAGEMENT
The PI and/or part of the project team mutually and actively involves target audience participants or partners in the proposed BI activity(s).

EVIDENCE-BASED PRACTICES
Refers to any concept, model, or strategy that is based on or informed by evidence- such as research, metrics, performance, educational research, and already established best practices.

GOALS
Goals are the purposes toward which the activity(s) is directed.

IMPACTS
Benefit(s) to society due to the BI activity(s) as evidenced by measurable or articulated outcomes.

MODELS
A model is a causal explanation of how strategies or interventions interact to produce an intended outcome.

OUTCOMES
Outcomes are the result of activities or models being implemented. They should be measurable and measured. Outcomes demonstrate changes in awareness, knowledge, skills, attitudes, behavior, motivations, beliefs, values, capacities, or conditions of individuals, groups, organizations, systems, or communities. There can be short term, intermediate, and/or long term outcomes.

OUTPUT
Outputs are tangible results of the activity, usually the artifacts or by-product created as a result of the activity. Can be an accounting of the activities done and the participants reached.

RESEARCH IMPACT
The societal impact of research, inclusive of all research areas and all funding programs

SCALABILITY
Scalability defines the potential of an activity to be reproduced in other locations, with diverse audiences, or across a wide spectrum of contexts.

STRATEGY
The process used to approach a problem or work toward an intended goal.

REFERENCES

Julie Risien, Martin Storksdieck, Unveiling Impact Identities: A Path for Connecting Science and Society, Integrative and Comparative Biology, Volume 58, Issue 1, July 2018, Pages 58–66, https://doi.org/10.1093/icb/icy011

This resource is based on the work done by the original NABI working group who developed the NABI Guiding Principles document in 2015.

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BI Planning Checklist

Broader Impacts Plan Checklist

This checklist was developed from the NABI Guiding Principles document as a quick assessment to help you gage the completeness of your BI Plan.

You can use this checklist to check off the items you have addressed in your plan. Then, review the items you have not addressed, and consider adding text to your proposal to address them.

1) Does the BI project address one/more of the target outcomes for BI activities outlined by NSF (check all that apply)

- [ ] Full participation of women, persons with disabilities, and underrepresented minorities in STEM
- [ ] Improved STEM education and educator development at any level
- [ ] Increased public scientific literacy and public engagement with science and technology
- [ ] Improved well-being of individuals in society
- [ ] Development of a diverse, globally competitive STEM workforce
- [ ] Increased partnerships between academia, industry, and others
- [ ] Improved national security
- [ ] Increased economic competitiveness of the United States
- [ ] Enhanced infrastructure for research and education

2) What is the potential for the proposed activity to benefit society and contribute to achievement of specific desired societal outcomes?

Participants/Audience

- [ ] Is the audience defined?
- [ ] Are the needs of the audience described?
- [ ] Is the size of the audience (# engaged participants) articulated?

BI Project Benefits to Society

- [ ] Does the project address a societal need?
- [ ] Are the benefits to the participant/audience described?
- [ ] Is the length of engagement with the participant/audience described and adequate?
- [ ] Is there a mechanism described for reaching the participant/audience?

3) To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?

Potential to be Transformative

- [ ] Does the proposed BI project utilize evidence-based principles, practices, and methods (and if so, to what degree)?
- [ ] Does the project transform knowledge of the PI?s science for the benefit of a target participant/audience?
- [ ] Is the project scalable? Relate to regional or national scale efforts?

5) How well qualified is the individual, team, or institution to conduct the proposed activities?

BI Team Description

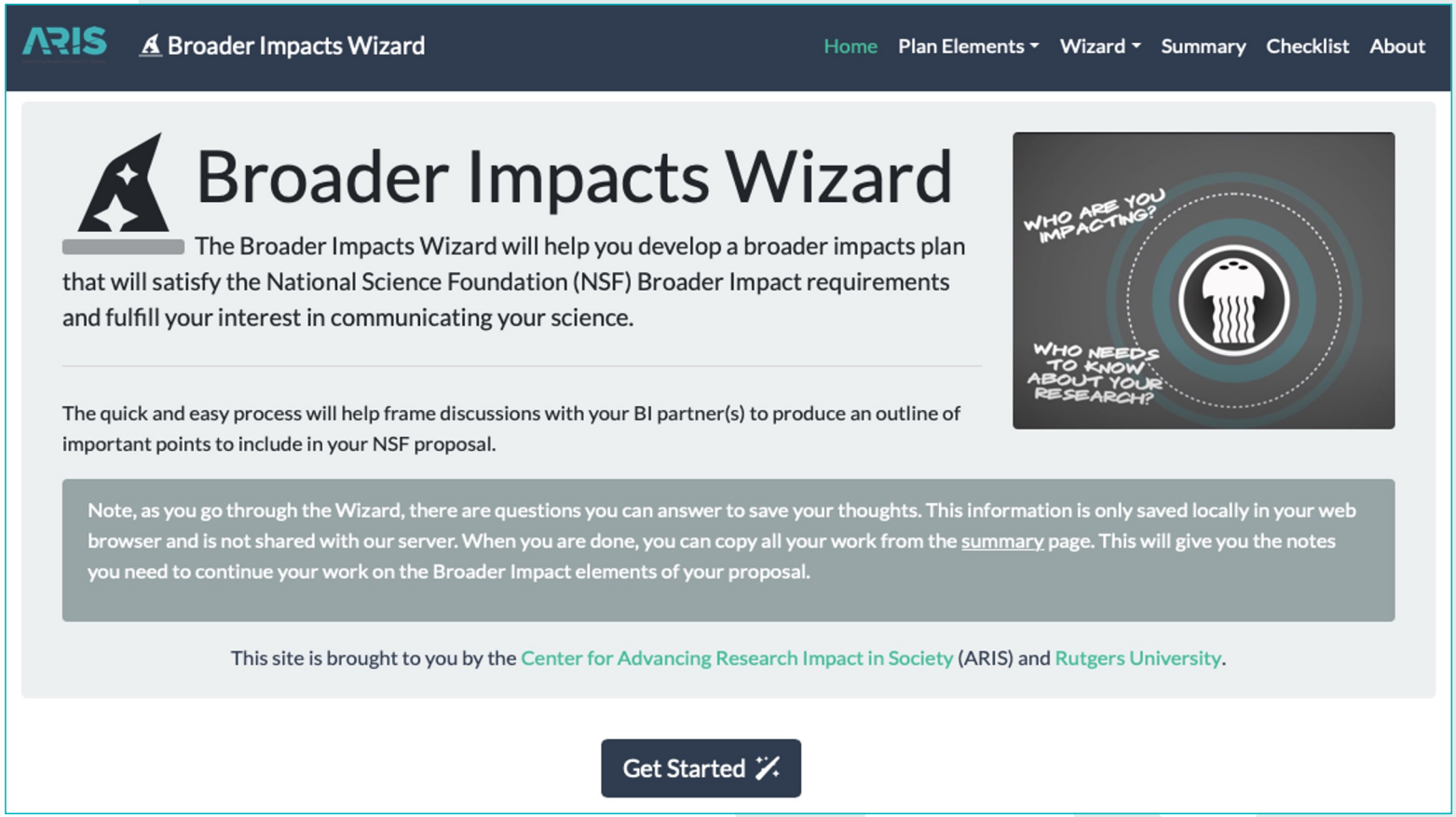
- [ ] Are the individual or team qualifications and roles adequately described?
- [ ] Is the size/scope of the team adequate for the scale of the project?
- [ ] Is there evidence that that team/individual has the necessary experience to implement the proposed BI activities and evaluate success?

4) 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?

BI Project Description

- [ ] Are the goals and objectives of the BI project clearly defined?
- [ ] Is the justification for the BI project clearly articulated?
- [ ] Is there a plan in place to measure the BI project outcomes?
- [ ] Does the BI project description cite the relevant literature on how people learn science?

BI Wizard


ARIS
Broader Impacts Wizard
Home
Plan Elements
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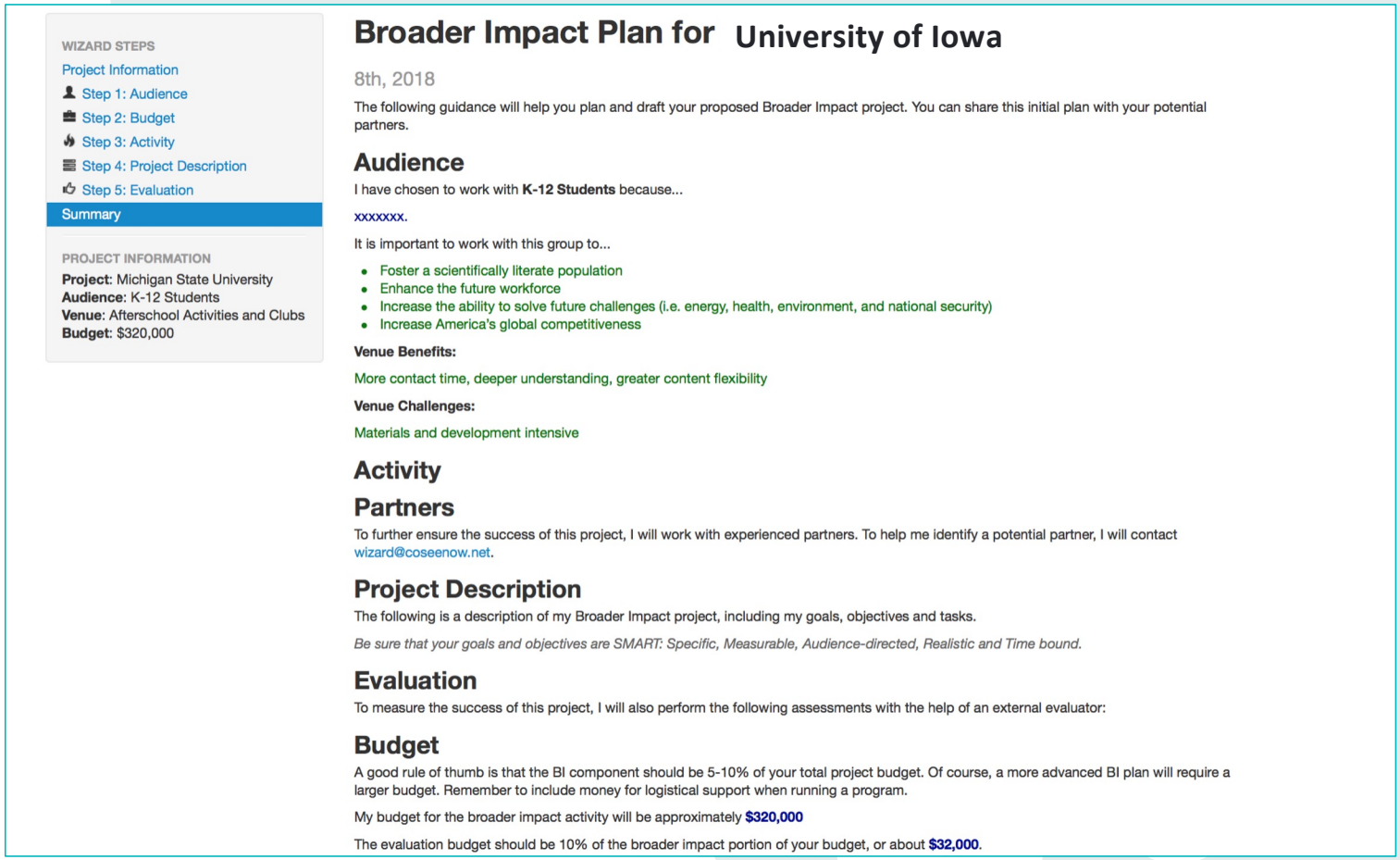
Checklist
About
Broader Impacts Wizard
The Broader Impacts Wizard will help you develop a broader impacts plan that will satisfy the National Science Foundation (NSF) Broader Impact requirements and fulfill your interest in communicating your science.
WHO ARE YOU IMPACTING?
WHO NEEDS TO KNOW ABOUT YOUR RESEARCH?
The quick and easy process will help frame discussions with your BI partner(s) to produce an outline of important points to include in your NSF proposal.
Note, as you go through the Wizard, there are questions you can answer to save your thoughts. This information is only saved locally in your web browser and is not shared with our server. When you are done, you can copy all your work from the summary page. This will give you the notes you need to continue your work on the Broader Impact elements of your proposal.
This site is brought to you by the Center for Advancing Research Impact in Society (ARIS) and Rutgers University.
Get Started

Output of the BI Wizard (with login)



WIZARD STEPS

Project Information
Step 1: Audience
Step 2: Budget
Step 3: Activity
Step 4: Project Description
Step 5: Evaluation
Summary

PROJECT INFORMATION

Project: Michigan State University
Audience: K-12 Students
Venue: Afterschool Activities and Clubs
Budget: $320,000

Broader Impact Plan for University of Iowa

8th, 2018

The following guidance will help you plan and draft your proposed Broader Impact project. You can share this initial plan with your potential partners.

Audience

I have chosen to work with **K-12 Students** because...

xxxxxxx.

It is important to work with this group to...

- Foster a scientifically literate population
- Enhance the future workforce
- Increase the ability to solve future challenges (i.e. energy, health, environment, and national security)
- Increase America's global competitiveness

Venue Benefits:

More contact time, deeper understanding, greater content flexibility

Venue Challenges:

Materials and development intensive

Activity

Partners

To further ensure the success of this project, I will work with experienced partners. To help me identify a potential partner, I will contact wizard@coseenow.net.

Project Description

The following is a description of my Broader Impact project, including my goals, objectives and tasks.

Be sure that your goals and objectives are SMART: Specific, Measurable, Audience-directed, Realistic and Time bound.

Evaluation

To measure the success of this project, I will also perform the following assessments with the help of an external evaluator:

Budget

A good rule of thumb is that the BI component should be 5-10% of your total project budget. Of course, a more advanced BI plan will require a larger budget. Remember to include money for logistical support when running a program.

My budget for the broader impact activity will be approximately **$320,000**

The evaluation budget should be 10% of the broader impact portion of your budget, or about **$32,000**.

Relevant Literature

For more information on how to meet the needs of the audience you selected, as well as related research on the activity you are planning on pursuing, we suggest reviewing the following references, as you may find some of these helpful to include in your proposal.

1) National Research Council (2009) *Learning Science in Informal Environments: People, Places, and Pursuits*. Washington, D. C.: The National Academies Press. http://www.nap.edu/catalog.php?record_id=12190
Learning Science in Informal Environments: People, Places, and Pursuits synthesizes the learning science literature on learning in informal environments to demonstrate the learning does occur in non-school environments and provide a framework on how to make this learning successful.

2) Stevens, R. & Bransford, J. (2007). The LIFE Center's Lifelong and Lifewide Diagram. In Banks, J. A. (ed.), *Learning in and out of school in diverse environments: Life-Long, Life-Wide, Life-Deep*. Seattle, WA: UW Center for Multicultural Education.
This report consists of four major parts. Part 1, the Introduction, describes the educational implications of significant changes related to demographics and globalization that are occurring in the U.S. and around the world. Part 2 explicates life-long, life-wide, and life-deep learning and states why these concepts should guide learning inside and outside of schools and other educational institutions. Part 3, which constitutes the main part of this report, focuses on the four principles listed below. Part 4 provides conclusions and recommendations. This report also contains a checklist that educational practitioners can use as a tool to generate dialogue about the four principles identified by the LIFE Diversity Consensus Panel.

3) National Research Council (2009) *Surrounded by Science*. Washington, D. C.: The National Academies Press. http://www.nap.edu/catalog.php?record_id=12614
Practitioners in informal science settings—museums, after-school programs, science and technology centers, media enterprises, libraries, aquariums, zoos, and botanical gardens—are interested in finding out what learning looks like, how to measure it, and what they can do to ensure that people of all ages, from different backgrounds and cultures, have a positive learning experience.

Surrounded by Science: Learning Science in Informal Environments, is designed to make that task easier. Based on the National Research Council study, ¬_Learning Science in Informal Environments: People, Places, and Pursuits_, this book is a tool that provides case studies, illustrative examples, and probing questions for practitioners. In short, this book makes valuable research accessible to those working in informal science: educators, museum professionals, university faculty, youth leaders, media specialists, publishers, broadcast journalists, and many others.

4) McCallie, E., Bell, L., Lohwater, T., Falk, J.H., Lehr, J.L., Lewenstein, B.V., Needham, C., and Wiehe, B. (2009) *Many Experts, Many Audiences: Public Engagement with Science and Informal Science Education – A CAISE Inquiry Group Report.* Washington, DC: Center for Advancement of Informal Science Education. http://caise.insci.org/uploads/docs/public_engagement_with_science.pdf
Science and technology are embedded in every aspect of modern life. This report describes how Public Engagement with Science (PES), in the context of informal science education (ISE), can provide opportunities for public awareness of and participation in science and technology.

5) Brody, M., Bangert, A., & Dillon, J. (2007) *Assessing learning in informal science contexts*. Washington, DC: National Research Council. (http://informalscience.org/research/show/3672)
This paper discusses assessment of outcomes in informal learning settings. Informal learning environments can include museums, nature centers, after school programs and other types of environments. The authors review 25 published evaluations of informal science contexts that have used phone surveys, personal journals, qualitative analysis of transcripts of verbal interactions, pretest-posttest designs, online surveys, and a variety of other methods to assess the impacts of informal science education programs. Both quantitative and qualitative data can be useful when evaluating the impacts of these types of settings. There is no single method that works 'best' in assessing the impact of a program; the appropriate methodology will depend on the particular context. Qualitative studies can include data gathering tools such as personal meaning or concept maps, which provide a visual representation of individuals' understanding of scientific concepts, such as extinction or climate change. Open-ended questions in focus group or individual interviews can allow for more in-depth responses. Observation may be used to examine individual or group behaviors within the context of an informal learning location where multiple activities may be available. The article also

BI Rubric

Broader Impacts Plan Rubric

Question 1: What is the potential for the proposed activity to benefit society or advance desired social outcomes?

Excellent Job!	Very Good Job!	Good - You are headed in the right direction.	Fair - Reconsider your approach?	Poor - Needs Work?
Target audience characteristics: The characteristics of the target audience, including who they are, where they are located, and how many will be engaged are clearly described. The target audience is well-aligned with project objectives.				
Participants are clearly described. The description includes strong details about who participants are and how many will engage in the project. The target audience is very well-aligned with project objectives. There are strong letters of collaboration.	Participants are described. The description includes details about who participants are and how many will engage in the project. The target audience is generally well-aligned with project objectives. There are letters of collaboration.	Participants are somewhat clearly described. There is some information on who participants are and how many will engage in the project. The target audience is somewhat well-aligned with project objectives.	Participants are not well described. There is little information on who participants are and how many will engage in the project. It is unclear if the target audience is well-aligned with project objectives.	Participants are not described. There is no information on who participants are and how many will engage in the project.
Target audience engagement: The mechanisms for engaging the target audience are clearly described and well-aligned with project objectives.				
Mechanisms for engaging participants in the project are very clearly described and well-aligned with project objectives.	Mechanisms for engaging participants in the project are described and generally well-aligned with project objectives.	Mechanisms for engaging participants in the project are somewhat clearly described and somewhat well-aligned with project objectives.	Mechanisms for engaging participants in the project are not well described and not well-aligned with project objectives.	No information is provided on the mechanisms for engaging participants in the project.

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Next ▸

Professional Development

- Since 2018, ARIS has offered more than **142 events** involving more than **5,300 participants**.
- ARIS has offered an extended series of trainings and meetings with three ORIC cohorts that have involved **20 institutions** and **28 administrators** and **36 BI professionals**.
- ARIS shares resources and news with the more than **1,500 community members** who subscribe to the ARIS newsletter.

BI professional:
"ARIS has given us templates of BI trainings we can deliver to our campus researchers and ***a strong network of BI partners*** *who can answer any questions as we begin to elevate BI at our campus."*

Researcher:
"I firmly believe their (ARIS) workshop helped me land my NSF award (also the first one I ever applied to), so I would like people to know how ***ARIS is an asset to researchers applying to NSF****."*

ARIS thanks you for your support, BIO!

NSF Directorate for Biological Sciences has supported ARIS in many ways including these awards:

- **The Broader Impacts Network:** A national infrastructure model (MCB: 1313197)
- **Research Coordination Network**: Broader Impacts and Outreach Network for Institutional Collaboration (BIONIC) (MCB: 1408736)
- **Workshop:** Broadening participation of persons with disabilities in STEM, October 14-16, 2019, National Federation for the Blind, Baltimore, MD (MCB: 1940655)
- **Conference:** Identifying Strategies for Building Capacity among MSIs and HBCUs for Advancing Research and Research Impacts on Society (MCB: 2236057)

Contact ARIS

Email: muresearcharis@missouri.edu

Website: researchinsociety.org

Twitter: @ARISImpacts

LinkedIn: ARIS Impacts

YouTube: ARIS Impacts

Instagram: ARIS Impacts

Sign up for our online newsletter list to stay informed about upcoming events, news, and resources for knowledge mobilization.

Join the **ARIS Online Community** to network and share resources and opportunities.

 This work is supported by the National Science Foundation under grants OIA 1810732, OIA 2140950MCB 1940655, and MCB 2236057..

NSF Merit Review Criteria

Intellectual Merit

Potential to advance knowledge within/across fields

- Creative, original, potentially transformative concepts
- Well reasoned and organized ideas and experiments
- Qualified investigators
- Adequate resources

Broader Impacts

Potential to benefit society

- Well reasoned, organized and resourced plans to (for example):
  - Promote training and education
  - Enhance infrastructure, resources
  - Engage in outreach to community
  - Broaden participation of underrepresented groups in STEM

Note: Broader impacts include research outcomes that advance the public good, e.g., help address societal challenges related to health*, security, sustainability, resilience...

Review of Your Broader Impacts Plans

Reviewers

Goals: What is the need? Who will benefit?

Execution: What will be done? How? By whom? What resources are available?

Outcomes: What do you expect to achieve? How will you measure success?

Other elements: Are your efforts above and beyond typical academic responsibilities? Do the efforts complement your research?

Strengths & Weaknesses

Review of Your Broader Impacts Accomplishments

As described in your

Reviewers

Proposal*

- Past experience as preparation (akin to 'preliminary data')
- Results of Prior NSF Support, which should include outcomes for **both** intellectual merit and broader impacts.

Program Directors

Annual Progress Reports

- Should include activities and achievements for **both** intellectual merit and broader impacts.

*Don't rest on your laurels – be sure to detail future plans!

NSF Tips for Broader Impacts

Next MCB Virtual Office Hours

- Wednesday July 12th, 2023, 2-3 pm ET

  Major Research Instrumentation Program (MRI)

All BIO Divisions host monthly VOH

Biological Infrastructure – 3rd Tuesday (3-4 pm)

Environmental Biology – 2nd Monday (1-2 pm)

Integrative Organismal Systems – 3rd Thursday (1-2 pm)

Molecular and Cellular Biosciences – 2nd Wednesday (2-3 pm)

NSF Convergence Accelerator

FUNDING OPPORTUNITY

NSF Convergence Accelerator Phases 1 and 2 for the 2023 Cohort – Tracks K, L, and M

The NSF Convergence Accelerator has issued a new funding opportunity for three new research track topics:

Equitable Water Solutions

Real-World Chemical Sensing Applications

Bio-Inspired Design Innovations

Researchers and innovators have two submission pathways to submit their proposals: Solicitation, **NSF-23-590,** and Broad Agency Announcement (BAA), **NSFBAA-CA23-01**

Solicitation details

Who Can Apply: Researchers and innovators from academia, industry, government, non profit, and other organizations are encouraged to submit a letter of intent (required) and full proposal.

Funding Opportunity:

Solicitation, NSF-23-590: bit.ly/CA_Solicitation_NSF-23-590
NSFBAA-CA23-01: bit.ly/NSFBAA-CA23-01

Solicitation Key Dates:

Letter of Intent: July 11, 2023
Full Proposal: August 22, 2023

SCIENCE HAPPENS HERE

Share your story!

#NSFstories

Join NSF in highlighting your amazing research, discoveries, innovation and more happening across the country and around the world.

- ☑ Tag your location and use our IG filter, graphics or simply post a photo or video with #NSFstories
- ☑ We will amplify your posts and share your stories. We will also share your stories at events, hold competitions, feature on our blog and more!

[Toolkit: nsf.gov/ScienceHappensHere](nsf.gov/ScienceHappensHere)

What about Medical Research?

- Biological research on mechanisms of disease in humans, including on the etiology, diagnosis, or treatment of disease or disorder, is normally not supported.
- Biological research to develop animal models of such conditions, or the development or testing of procedures for their treatment, also are not normally eligible for support.

NSF Proposal & Award Policies and Preparation Guide (PAPPG 23-1)

Contact a Program Director!
(send ~1-pg summary)

- However, use-inspired basic research with societal benefits (such as future implications for human health) can be supported.
- For example, research on:
  - Mechanisms of DNA damage and repair – **YES**
    DNA repair pathway/enzyme as drug target – **NO**
  - Fundamental questions about viral structure, replication, evolution, etc. – **YES**
    Therapeutic interventions against infection – **NO**
  - Mechanisms underlying cell motility – **YES**
    Metastasis of tumor cells – **NO**