# NSF Synergistic Activities

How to make the most of the Synergistic Activities section of your NSF biosketch

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THE UNIVERSITY OF ARIZONA
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# BUILDING YOUR SYNERGISTIC ACTIVITES SECTION FOR YOUR NSF BIOSKETCH

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# What Are Synergistic Activities

- FROM NSF 22-1 (THE 'PAPPG')

  A list of up to five distinct examples that demonstrates the broader impact of the individual's professional and scholarly activities that focus on the integration and transfer of knowledge as well as its creation.



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# NSF Reviewers Considerations

What the proposers want to do

Why they want to do it

How they plan to do it

How they will know if they succeed

What benefits could accrue if the project is successful

# NSF Reviews Proposals for 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.

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# NSF Elements Considered in Review and How Synergistic Activities Interact

**What is the potential for the proposed activity to:**

Advance knowledge and understanding within its own field or across different fields **(Intellectual Merit)**; and

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 organization to conduct the proposed activities?

Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

*Synergistic Activities*

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# NSF Provided Examples

Innovations in teaching and training

Contributions to the science of learning

Development and/or refinement of research tools

Computation methodologies and algorithms for problem-solving

Development of databases to support research and education

Broadening the participation of groups underrepresented in STEM

Service to the scientific and engineering community outside of the individual's immediate organization

Equity, Diversity, Inclusion

Other

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# What are Distinct Examples

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  A list of up to five **distinct examples** that demonstrates the broader impact of the individual's professional and scholarly activities that focus on the integration and transfer of knowledge as well as its creation.

| Good | Great! |
|------|--------|
| 2020-2024: Co-Principal Investigator, developing a Network to Coordinate Research on Equity Practices and Cultures in STEM Maker Education, National Science Foundation (NSF) ($499,985) | Developing an NSF funded DRL equity and interdisciplinary "making in STEM" education program; collaborating with researchers across 4 universities with specific emphasis on building capacity for research knowledge and dissemination of research related to 'making' and equity, to improve STEM-focused maker participation. |
| Senior Researcher, National Science Foundation Grant, Developing and Validating a Scalable, Classroom-focused Measure of Usable Knowledge for Teaching Mathematics: The Classroom Video Analysis Instrument, (2017-2021) | Part of an NSF DRK-12 grant, developed a set of scalable, classroom-focused measures of usable mathematics teaching knowledge that are aligned with state standards to extend the classroom video analysis approach to inform researchers, policy makers, and school districts on how to monitor teacher knowledge over time, and to gauge teacher preparedness for implementing state standards in mathematics and enhance learning and teaching of STEM. |
| Principal Investigator, Research Experiences for Undergraduates Supplemental for The Z-factor Program: A Data-Driven, Sleep Education Program to Improve STEM in Elementary School Students, sponsor: National Science Foundation | PI which Integrated NSF's 'Research Experiences for Undergraduates' program with an existing NSF grant 'A Sleep Education Program to Improve STEM education in Elementary School' to mentor undergraduate students in meaningful ways in conducting research to better understand and promote practices that increase students' motivations and capacities to pursue careers in fields of science, technology, engineering, or mathematics (STEM). |
| 2018-2019: Principal Investigator, Synthesis and Design Workshop: Principles for the equitable design of digitally-distributed, studio-based STEM learning environments, National Science Foundation ($99,825) | As PI of NSF Conference Grant, designed a workshop bringing together a community of collaborators from multiple stakeholder groups to engage in activities that invite experimentation with distributed learning technologies to examine ways to adapt learning to the changing technological landscape and create robust, dynamic online STEM learning environments. |

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| Good | Great! |
|------|--------|
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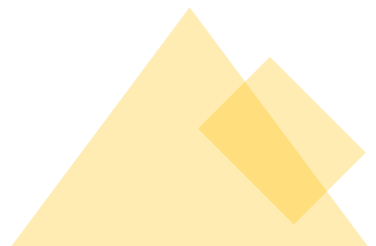
# Tailor Your Biosketch For Each Proposal

**Product Section:** Only list the 5 most relevant papers to the grant you are applying for

**Synergistic Activities:** Remember that each synergistic activities section should be customized to the specific grant

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# RESEARCH TEAM

## COREY KNOX

Research Scientist. Assists with IRB questions, logic models, frameworks, research questions, evaluation and speaker series. cknox@arizona.edu

## ZACH SBRAGIA

Pre-Award submission support. Also working on Research webpages and grants database building and analysis. zsbragia@arizona.edu

## JEFFREY ANTHONY

Grants Development. Will provide foundation support, assist with foundation write-ups (translational),and orientation planning. jeffreyanthony@arizona.edu

## Anna Lawrence

Pre/Post Award support. Will assist with submissions but also have portfolios assigned per awarded grants. annalawrence@arizona.edu