Indiana Space Grant Consortium Research and Outreach Project Funding

1.   Background

NASA initiated the National Space Grant College and Fellowship Program in 1989. The Space Grant national network includes over 850 affiliates from universities, colleges, industry, museums, science centers, and state and local agencies. These affiliates belong to consortia in all 50 states, the District of Columbia and the Commonwealth of Puerto Rico. These institutions are working to expand opportunities for Americans to learn about and participate in NASA's aeronautics and space projects by supporting and enhancing science and engineering education, research and public outreach efforts. The consortia fund scholarships and fellowships for students pursuing careers in science, mathematics, engineering and technology (STEM), as well as curriculum enhancement, research, and faculty development. Member colleges and universities also administer pre-college and public service education projects in their states.

The Indiana Space Grant Consortium (INSGC) was created in 1991 under the Space Grant Program. Following on the Space Grant goals, the INSGC mission statement is "INSGC facilitates and funds education and research, builds a diverse and inclusive STEM workforce, and promotes NASA to the public". Our awards programs are designed to implement that motto and the INSGC Vision: "INSGC aspires to bring NASA's mission and resources to your life, education and work in Indiana". Additional information about INSGC can be found at www.insgc.org.

2.   Use of Space Grant Funds

Funding Restrictions: The following restrictions govern the use of the federally-provided and the cost-shared portion of funds and are applicable to this Cooperative Agreement. Proposers shall use NASA funds for support of undergraduate students, graduate students, post-doctoral fellows and their research; for support of faculty and researchers to conduct research, engage in professional development, and redesign, enhance, or develop curriculum; for research-related equipment, travel, and materials; for support of K-12 activities; and to support project management, administration, and evaluation. For additional budget guidelines, see the *NASA Guidebook for Proposers Responding to a NASA Funding Announcement (revised March 2018)*
(https://www.hq.nasa.gov/office/procurement/nraguidebook/proposer2018.pdf).

Awards to U.S. Citizens: Students and faculty receiving direct support (salary or travel) must be U.S. citizens. This restriction does not apply to the use of matching funds.

Cost Share Requirements: INSGC is contractually obligated to meet minimum cost-share levels. Non-federal cost-share requirements remain the same as in prior years. Funds for internships, fellowships, and direct student support may not require cost-share. All other projects will require 1:1 non-federal funds as cost-share, with Outreach projects requiring 1.5:1 match. Additional cost-share is always highly encouraged, and all applicable non-federal cost-share

sources should be reported in the INSGC reporting mechanisms. Please contact us if you have any questions.

Facilities and Administrative Costs (F&A): The National Space Grant College and Fellowship Program grant does not cover facilities and administrative costs. Unrecovered facilities and administrative costs may be used as cost-share.

Foreign Travel: International travel is generally not allowable with Space Grant funds. Please contact us directly for specific circumstances.

Student Research Funding, Internships, Travel Fellowships, STEM Education Major Funding and Fellowship Funds: These awards are considered stipends and are paid directly to the recipient. It is INSGC policy that internship, research and fellowship funds cannot be used for non-educational fees, graduate student tuition remission, or past due accounts. Fellowship and Internship awards are divided into payments over the course of the award year.

Longitudinal Tracking: INSGC is required to complete a longitudinal tracking process on its awardees. This information will be used to assess the impact of the INSGC program. Information collected for longitudinal tracking includes degree awarded, year, INSGC funds received and current activity (employed - industry, NASA, or Academic; still in school; etc.)

Reporting Obligations: NASA has explicit requirements for all programs funded by INSGC to submit several reports as a condition for continued funding and good standing of the Consortium. Thus, the INSGC Central Office requires accurate and timely reporting by awardees. Reporting templates are available on the INSGC website (www.INSGC.org). These reports are a federal contractual obligation. Due dates can change annually and will be announced as soon as possible.

Community Colleges: Community College Associates (those community colleges that have run at least one INSGC-funded program in partnership with an INSGC affiliate) may apply independently for funding. Community colleges with no prior grants from INSGC may apply in partnership with an INSGC affiliate. Please contact the INSGC office for more information.

3.   Proposal Information

3.1 Focus Areas, Goals, and Objectives

All proposals are required to align with a specified NASA Office of STEM Engagement Goal/Objective, and to a NASA Mission Directorate. NASA's STEM engagement function will play a critical role in achieving the Agency's Strategic Objective 3.3 by implementing activities within three **focus areas**:

1) Create unique opportunities for students to contribute to NASA's work in exploration and discovery;

2) Build a diverse future STEM workforce by engaging students in authentic learning experiences with NASA's people, content and facilities; and

3) Strengthen understanding by enabling powerful connections to NASA's mission and work.

The **goals and objectives** for NASA STEM Engagement are:

Goal 1.0: Enabling contributions to NASA's work

Objective 1.1: Students contribute to NASA's endeavors in exploration and discovery.

Objective 1.2: Research and development capacity of educational institutions is enhanced, enabling broad and diverse contributions that directly address NASA priorities.

Goal 2.0: Building a Diverse, Skilled Future STEM Workforce

Objective 2.1: A broad and diverse set of students are attracted to STEM through NASA opportunities.

Objective 2.2: Students, including those from underrepresented and underserved communities, explore and pursue STEM pathways through authentic learning experiences and research opportunities with NASA's people and work.

Objective 2.3: The portfolio of NASA STEM engagement opportunities meets agency workforce requirements and serves the nation's aerospace and relevant STEM needs.

Objective 2.4: Strategic partnerships with industry, academia, non-profit organizations and educational institutions enhance and extend the impact of NASA's efforts in STEM engagement.

Goal 3.0: Strengthen Understanding of STEM through Powerful Connections to NASA

Objective 3.1: Youth are introduced to STEM concepts and content through readily available NASA STEM engagement resources and content.

Objective 3.2: Students gain exposure to STEM careers through direct and virtual experiences with NASA's people and work.

Proposals are **required** to address alignment with one or more research priorities of the Mission Directorates and/or Centers within the proposal narrative. Information on current NASA Mission Directorates is available at: https://www.nasa.gov/directorates/

3.2 Funding maximums

Project funding amounts are as follows:

- Multi-institutional/Multi-disciplinary Projects: $20,000 maximum award
- All Other Projects: $15,000 maximum award

If funding above the maximums listed is sought, additional discussion and explanation would be required. Funding requests for smaller projects are acceptable, but requests for under $1000 must have special justification regarding why a separate, distinct project is justified.

3.3 Awards including Student Research Funding

PIs and Affiliate Directors will need to clearly identify processes for selecting students to participate in research projects. Diversity and inclusion are high priority in NASA's STEM Engagement Priorities. A statement detailing how diversity and inclusion are being demonstrated in the recruitment of students working on the project is required, as well as a description of efforts toward retention.

3.4 General Submission Requirements

The application process for INSGC is conducted electronically through the National Space Grant application site linked through the INSGC website. Failure to submit all required information may result in the application being rejected. Items to be included in the pdf file:
- Proposal Narrative: Limited to 4 pages, double-spaced, size 12 font preferred, 10-font minimum. Please include the following sections:
  - *PI contact information* (all student projects must identify a faculty or staff advisor/mentor who will serve as the responsible PI for the project)
  - *INSGC Affiliate*
  - *NASA STEM Engagement Goal and Mission Directorate alignment*
  - Your *vision* for the project
  - Your *goals* (specific, measurable, attainable, relevant, time sensitive) for the project
  - What are your *objectives*? How are you going to reach your goals and what measures will be evaluated to indicate success? Include brief information on resources/environment and PI qualifications
  - Diversity and inclusion are high in NASA's STEM Engagement Priorities. Project proposals must *describe their strategies and goals for enhancing and supporting diversity and inclusion* for team members and related engagement activities
- *Budget* (See Appendix C) with budget narrative(s)
- *Project Evaluation*: Please construct a one page Logic Model to describe the overall project and the intended outcomes. Please see Appendix A for instructions and Appendix B for the template. This logic model is included in the page limit.

3.5 Review Process

All proposals will undergo a two level review process. The first level of review will evaluate the merit of the proposal and its potential impact on STEM education, outreach, and/or workforce development in Indiana. Experts will be selected to review proposals from the members of the NASA and National Space Grant communities. The second level of review is an internal examination by INSGC to ensure appropriate program, discipline, and demographic balance. Awards are based on proposal success in both levels of review.

- **Level 1 Review**

Merit reviewers will score proposals from 0-100. The criteria include reasonableness of the proposed project and how responsive the proposal is to the needs of NASA. Points are assigned based on criteria described in **Appendix D**.

- **Level 2 Review**

Level 2 reviews address adherence to INSGC goals, and consider the broader impacts of the project (as defined by the NSF):
- How well does the activity advance discovery and understanding while promoting teaching, training and learning?
- How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)?
- To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks and partnerships?
- Will the results be disseminated broadly to enhance scientific and technological understanding?
- What may be the benefits of the proposed activity to society?

4.   Award Notification and Timelines

All applications should be received by the due date to ensure full consideration. Announcement of awards will be made as soon as possible. Funding of successful proposals will be contingent on INSGC receipt of funding from NASA. Please note that timelines are dictated by the NASA Office of Education, and may vary year-to-year. Every effort will be made to make timely awards and accommodate start dates. Please contact the INSGC office with specific questions.

5.   Contact Information

Please direct all questions to: Indiana Space Grant Consortium 765-494-5873 insgc@purdue.edu or Dr. Dawn Whitaker dwhitaker@purdue.edu.

Appendix A - Logic Model and Narrative Requirement

It helps to start with a picture of how your project is going to work. The logic model provides a roadmap of the program, highlighting how it is expected to work, what activities need to come before others and how desired outcomes are achieved.

Why go through this?
Program design benefits- stay more focused on outcomes and link activities to desired outcomes.
It is a base from which to conduct an evaluation of the program; it spells out how the program produces desired outcomes. It enables measurement of each set of events in the model to see what happens, what works, what doesn't and for whom. A logic model helps to discover where the model breaks down or is failing to perform as conceptualized.
The logic model requires clarifying the underlying rationale for the project and the conditions under which success is most likely to be achieved.
In order for INSGC to report back to NASA how funds where spent, INSGC needs a clear picture of how your program meets the objectives of INSGC and NASA and how successful your project was. A logic model provides a picture of how you will do this.
The proposal will include the following:
- Your vision for the project.
- Your goals for the project and which one of INSGC's and/or NASA's goals this meets.
- What are your "SMART" (specific, measurable, attainable, relevant, time-sensitive) objectives? How are you going to reach your goal?
- How will you report back to INSGC on the outcome of your project, including assessment?
- Include a logic model of your project in your proposal:

Goal	Inputs	Activities	Outputs	Outcomes	Outcome Measures
Which INSGC or NASA goal does your project meet? Ex: NASA objective 1.2 Student Support	What do you need to do this project? (list everything needed) Ex: Interns, instructors, supplies	What activities will be done? Ex: data collection, analyze data, submit for publication	What is the quantitative impact? Ex: # of students funded; # of articles submitted for publication	What will be accomplished? Ex: An increase in students' confidence in research process	How will you measure outcomes/ if goal was met? Ex: survey students about experience of doing research

Appendix B - Logic Model Template

Project Name

Goal	Inputs	Activities	Outputs	Outcomes	Outcome Measures

Appendix C - Budget Template

Indiana Space Grant Consortium (INSGC) Grant Program BUDGET SUMMARY

Principal Investigator:_____

Project Title: _____

Please provide the total amount for each category on the line provided.

	INSGC	TOTAL COST SHARE
Personnel	$_____	$_____
Fringe Benefits	$_____	$_____
Student Stipends	$_____	$_____
Student Fringe Benefits	$_____	$_____
Supplies	$_____	$_____
Equipment (exhibit rental, production)	$_____	$_____
Marketing	$_____	$_____
Travel	$_____	$_____
Other	$_____	$_____
Total Direct Costs	$_____	$_____
Facilities & Administrative Costs	NA	$_____
Total Project Costs	$_____	$_____

Please show the source of Cost-Share Amounts according to the categories indicated:

	Cash	Non-Cash	TOTAL
NASA Space Grant	_____	_____	_____
Other Federal	_____	_____	_____
Industry	_____	_____	_____
Lead Institution	_____	_____	_____
Non-Profit Organization	_____	_____	_____
Academic Affiliates	_____	_____	_____
State/Local Government	_____	_____	_____
Participants	_____	_____	_____
Other	_____	_____	_____
TOTALS	_____	_____	_____

PLEASE ATTACH A ONE PAGE BUDGET NARRATIVE.

Appendix D – Peer Review Rubric

Merit reviewers will score proposals from 0-100. The criteria include reasonableness of the proposed project and how responsive the proposal is to the needs of NASA. Points are assigned based on the following criteria: Approach; STEM Diversity; Education and Research Integration; Project Innovation; Project Environment; Cost Effectiveness; Applicant Qualifications.

Approach (0 – 20): Score _____

0	4	8	12	16	20
Writing very difficult to understand; poorly conceived and organized; no clear description or supporting evidence; unlikely to provide scientific results.	Writing difficult to understand, but some signs of project conception and organization; minimal supporting evidence; limited possibility of some minor results.	Multiple sections of poor writing style and organization; limited supporting evidence and disciplinary conceptualization; some possibility of a few non-trivial results.	Writing moderately clear, structured, and organized; some good supporting evidence; some likelihood of yielding useful results.	Writing clear and well organized; well structured and conceived; highly likely to yield desired results within a single discipline.	Extremely clear and compelling approach, with excellent interdisciplinary organization, methodologies, and supporting evidence from multiple viewpoints. High likelihood of novel and substantial results across domains.

STEM Diversity (0 – 20): Score _____

0	4	8	12	16	20
No clear demonstrated recruitment plan; poor acknowledgement of diversity issues or goals; no connection to local resources.	Limited, passive recruitment plan; all elements of diversity outsourced to external agents.	Some attempts at commitment to diversity efforts, including some proposed attempts at engagement with URM or other agents.	Moderately strong commitment to diversity efforts, with some evidence of engagement with other partners.	Strong commitment to diversity goals within one or two specific dimensions of URM engagement.	Extremely strong and committed history and demonstration of multiple dimensions of diversity and engagement as active goals with ongoing substantive efforts.

Integration (0 – 20): Score _____

0	4	8	12	16	20
No significant educational benefits to student participants; no skill set development; tasks limited to trivial research support (e.g., cleaning glassware)	Limited educational benefit to a few students; poor grounding or professional development opportunities; only students with existing expertise considered	Growing numbers of students with possible benefits; some professional development opportunities for student leaders; limited project management development.	Good integration of research and education for participating students; some development of professional and project management skills.	Strong integration of student research, education, and professional / project development skills; some skills related to professional experience.	Extremely powerful integration of research, education, and student-led peer learning efforts. Project management and professional developments as springboards to professional experience.

Project Innovation (0 – 10): Score _____

0	2	4	6	8	10
No creative, original, or novel concepts or approaches suggested; purely "cookbook" assignment efforts without research innovation.	Limited novelty or creativity in problem formulation or project approach. Only limited opportunities for innovation or original findings.	Some opportunities for creative project formulation. A few opportunities for project innovation or creativity may be possible.	Good opportunities for creativity and innovation in project formulation or possible approaches towards novel solutions.	Some very creative concepts and original suggestions for innovation; evidence of potential novel approaches to existing problems.	Extremely creative and original concepts suitable for conference or journal scholarly work; novel and transformative approaches to problem solving within or across fields.

Project Environment (0 – 10): Score _____

0	2	4	6	8	10
No resources for project needs described in proposal; no institutional resources offered; very poor likelihood of project success.	Limited level of institutional commitment; resources not fully available to meet project needs; project success is at risk due to limited resources or features offered to support project.	Some reasonable levels of contributions by institution; limited commitments beyond minimum financial requirements.	Good institutional commitments and reasonable levels of resources given institutional capabilities.	Strong institutional resource commitments; multiple important features with likelihood to ensure strong project success.	Exceptional level and range of institutional financial and non-financial resource commitments; unique and transformational features to enable very high probability of role modeling for other projects.

Cost Effectiveness (0 – 10): Score _____

0	2	4	6	8	10
Extremely poor cost effectiveness; little or no funding provided for student support or other project needs; no capacity for project expansion or future effort.	Limited cost effectiveness, with very high costs per individual participant; benefits to very few participants; benefits limited to simple stipend payments or regular salary	Some costs supporting student participant growth and development; budget sufficient for multiple participants to obtain some benefits.	Reasonable balance of project costs to potential benefits; strong participation by multiple participants; high confidence that budget will enable moderate success.	High benefits and strong, memorable experiences for participant; very limited funding for staff or other support costs.	Extremely high benefits and transformational experiences for very low per-person costs (through either very large number of participants or significant cost sharing); very modest budget for participant gains.

Qualifications (0 – 10): Score _____

0	2	4	6	8	10
Project leads / senior personnel have no relevant experience or qualifications in research field or proposed program areas.	Very limited qualifications or evidence of experience presented; project leads / senior personnel do not strongly include domain experts in proposal.	Some relevant qualifications and experience demonstrated by project leads / senior personnel, but substantial gaps and limitations also evident in proposal.	Overall good demonstrations of qualifications and experience in proposed project domains, but some gaps noted.	Senior personnel / project leads with clearly demonstrated and strong qualifications in proposed project domains.	Senior personnel and project leads have well demonstrated, outstanding qualifications and recognized leadership in proposed project domains.