



## **General Programmatic Terms and Conditions for the Nanoscale Science and Engineering Education (NSEE) Cooperative Agreement (NSF 05-543)**

1. **Key Personnel:** Except for the Principal Investigator(s) (PIs) or Co-PIs identified in this award, requests to make any changes to personnel, organizations, and/or partnerships specifically named in the proposal, that have been approved as part of this award, shall be submitted in writing to the Cognizant NSF Program Officer for approval prior to any changes taking effect. Requests for prior approval of changes to the PI(s) must be submitted through FastLane for review by the Cognizant NSF Program Officer and approval by an NSF Grants Officer.
  
2. **Program/Project Description:** This Award is intended to foster public awareness, engagement, and understanding of nanoscale science, engineering, and technology through establishment of a Network, a national infrastructure that links science museums and other informal science education organizations with nanoscale science and engineering research organizations. The goals of the Network are to:
  - Create a sustainable service-oriented infrastructure that supports long-term efforts to educate the public about nanoscale science, engineering, and technology, as well as build capacity in the field and within participating institutions.
  - Strategically plan, develop, implement, and disseminate educational deliverables of all kinds that foster greater engagement with and understanding of nanoscale science, engineering, and technology in a comprehensive way by the general public, as well as K-12 school groups.
  - Stimulate educational research and evaluation that add to the nanoscale informal science education knowledge base, inform continuous improvement of both products and processes, and guide the development of future deliverables.

The Network must simultaneously embody two types of collaboration. One type, informal science education (ISE)-research organization collaboration, links science museums and other ISE organizations with NSF-funded research centers in nanoscale science and engineering (NSE) to create a conduit for connecting informal learning expertise and public audiences with research knowledge. The second type, ISE organization collaboration, connects science museums and other ISE organizations of varying sizes having complementary capacities and resources. All aspects of the Network, including its creation of public and professional deliverables, should incorporate significant research and development activities; thus, the lead organization and its partners will serve as an "R&D" center for informal nanoscale science, engineering, and technology education. Through establishing the Network infrastructure and producing the public and professional audience deliverables, this project should

achieve a lasting national educational impact on the general public, as well as on both the ISE and research communities.

3. **Project Governance:** The Awardee will ensure that an efficient and effective project governing structure is in place throughout the award period to support all critical or significant project activities. The Awardee will ensure efficient and effective performance of all project responsibilities by the governing components throughout the award period.

The Awardee will serve as the lead institution, providing the administrative infrastructure for connecting the informal learning organizations with each other and with the nanoscale science and engineering research organizations. It will assure that Core Partners, Organizational Partners, and the Network as a whole function together as an integrated project with shared education, research, and knowledge-transfer goals. In addition to coordinating Network activities, the Awardee serves as the administrative center and fiscal agent with responsibility for the management and resolution of all issues and concerns among all the project partners, subawardee, contractors, consultants, advisors, and other participants.

PI. The PI shall administer the award and provide executive responsibility for project management, staffing, and resource allocation in accordance with the original proposal and subsequent modifications that have been approved by the Cognizant Program Officer. The PI will have final decision-making responsibility and authority for all aspects of the project and will direct the Network staff (Director and Project Manager). The PI and all co-PI's individually will guide the work related to the development and dissemination of specific Network deliverables.

Network Executive Group (NEG). The NEG consists of the PI and one co-PI from each Core Partner. It will be responsible for collaborative decision-making concerning the overall direction of the project, including all strategic coordination and operational issues. The NEG will make decisions concerning annual fund allocations to specific project deliverables and to specific subcontractors consistent with the approved NSF budget. The NEG, along with the two additional co-PIs, will be responsible for monitoring the work of the Organizational Partners with respect to the specific strands of work coordinated by the three Core Partners.

NISE Center for Network Management. The Center will be responsible for overall administration and daily coordination of the NISE Network; it will include the full-time staff positions of NISE Network Director and a NISE Network Project Manager. Within the guidelines established by the Executive Group concerning fund allocations, Center staff will have the authority to approve payments to subcontractor and to resolve logistical issues.

Network Director. The full-time Director will work with the NEG in establishing the Network strategies and will have overall responsibility for the day-to-day direction of their implementation. The Director will coordinate the work of the Network, will be

responsible for communications within the Network, and will represent the Network to various external communities.

Network Project Manager. The full-time Project Manager will coordinate logistical aspects of the Network project administration, and will coordinate contractual relationships with subawardees and other subcontractors. The PM will ensure that work to be performed will be directed at meeting Network strategic objectives and that proper NSF administrative and fiscal procedures are implemented.

Network Coordinating Council. The Council will be established during Year 1 with responsibility for oversight of the NISE Network itself, during and beyond the five NSF-funded project years. It will include representatives from the core institutions (3), ISE community (3), research community (1), and research outreach community (3); the specific composition and membership will be finalized by the end of Year 1. The Council will provide advice and recommendations to the members of the Network and to the NEG concerning Network strategies for growth, sustainability, and dissemination of deliverables. A key task of the Council will be to provide a review of the proposed phase II (Years 3 to 5) investments and directions. At the end of the project, the Council will remain as the Network operating authority, providing that successful strategies for sustainability are achieved. A chair will be chosen to lead the group. Over time, the representatives on this Council will change to reflect the Network's development.

Organizational Partners. Organizational partners will be responsible for contributing to the development of Network deliverables, working collaboratively with other network partners and individually at their home institutions. They will be responsible for implementing activities that meet Network strategic goals and fulfilling contractual obligations. Partners will be responsible for providing creative input at Network-wide gatherings and at the gatherings of subgroups working on specific project deliverables.

Advisory Group. The members of this group will be responsible for providing the Network with advice concerning the scientific and education content of the overall activities of the Network and of the specific Network deliverables under development at the annual Network meetings and other times as needed.

Thinking Partners. Thinking Partners will be responsible for helping to explore ways in which the Network can have broader reach beyond its current participants and may play a more significant role in development and dissemination as the work of the NISE Network proceeds. These individuals will be responsible initially for attending Network-wide gatherings and for providing creative input to the activities of the Network.

External Evaluators. The evaluators will be responsible for summative evaluation of Network public and professional deliverables and of the Network itself. They will also provide guidance to the in-house research and evaluation teams concerning front-end and formative evaluation activities and will coordinate the activities of all evaluation teams so that evaluation results can provide new knowledge to scientific, educational, and ISE communities on learning about nanoscale science, engineering, and technology.

4. **Reporting Requirements:** The Awardee will provide *ad hoc* and regular reports as designated by the NSF Cognizant Program Officer, who establishes their content, format, and submission timeline. The Awardee will submit all required reports via FastLane using the appropriate reporting category. For reports not specifically identified in FastLane, the Awardee will use the “Interim Reporting” function to submit reports.

**Initial Reports.** No later than 90 days following the date of official issuance of this Award, the Awardee is required to complete and submit a project Baseline Survey, which will indicate the expected status of each deliverable by the close of each project year and establish specific measurable project outcomes (public, professional, and Network) that are aligned with the evaluation plan. In addition, the PI will provide a comprehensive plan and timeline that identifies how the project will specifically address the following: Diversity (including Project Governance, Public and Professional Audiences); Marketing (focusing on Public Audiences); and Communications (focusing on Professional Audiences).

**Interim Reports.** On a quarterly basis, the PI will submit a progress report that summarizes key accomplishments and identifies project schedule and budget variances. Furthermore, the Awardee must notify immediately the Cognizant Program Officer of any significant external or internal factors with potential to negatively affect project management or outcomes. The Awardee will cooperate with and provide data to any NSF-designated program evaluator. NSF may interview and administer surveys to the Core Team, Partner Organizations, Contractors, and Network participants to assess project performance.

**Annual Reports.** The Awardee must submit an Annual Report to the Cognizant Program Officer at least 90 days before the end of the current budget period. In addition to the status of project deliverables and discussion of progress against projected outcomes, the Annual Report must include an analysis of project budget vs. actual expenses, accompanied by explanations of budget variances (greater than 10% of a line item), lessons learned, and changes that will be made as a result. The Annual Report must be approved by the Cognizant Program Officer before the next continuing grant increment can be awarded.

**Phase I Report.** Upon the conclusion of Phase I (Research and Development) on or before the conclusion of Year 2, the Awardee will revise the project plan to describe with specificity all remaining project deliverables for Phase II, including learning outcomes, additional organization partners, progress milestones, dissemination plan, evaluation plan, contractors, and detailed line item budgets. This plan must be approved by the Cognizant Program Officer before NSF funds for Phase II can be released.

**Final Report.** Within 90 days after the expiration of the award, the Awardee also is required to submit a Final Report. It must be accompanied by a summative evaluation that assesses and compares with projected outcomes the public and professional impacts, as well as of the operation of the Network.

5. **Awardee Support of Ongoing Management and Oversight:** The Awardee will ensure full commitment and cooperation among the governing structure components, and all project staff during all ongoing NSF project management and oversight activities. The Awardee will ensure availability of all key institutional partners during any desk or on-site review, as well as timely access to all project documentation.

Site Visits. NSF or its representatives may make site visits to the Awardee and other organizations participating in the project. A Reverse Site Visit will be held at NSF to review progress on the Network and deliverables prior to the close of each project year. The Awardee will also participate in Nanoscale Science and Engineering Education (NSEE) and Nanoscale Center for Learning and Teaching (NCLT) meetings as required to share information and resources.

Communications. The Awardee will establish an internal communications infrastructure to facilitate project management and the timely sharing of information among all Network participants. It will hold a Network Launch Meeting prior to the end of CY 2005 and subsequent Network Annual Meetings to share progress, address problems, and strengthen the collaborative aspects of the Network.

Online Resource Center. The Awardee or its designee shall establish and maintain a NISE Web Resource Center for sharing information about the project with the greater ISE and research communities as well as Network participants. The Awardee will make available on this site, on [www.informalscience.org](http://www.informalscience.org), and other sites indicated by NSF, all front-end evaluations, formative evaluations, and summative evaluations. It will provide open access to project resources, facilitating wide dissemination of project deliverables, as well as sharing knowledge and best practices.

6. **Program-Specific Terms and Conditions:**

National Impact. To the greatest extent possible, the Awardee will seek to achieve national public and professional impact. In addition to developing institutional capacity and partnerships at the local level through Network members, this project will seek to create national NISE initiatives that build upon and synergistically amplify the regional public audience impacts. Furthermore, through broad dissemination and other means, the Awardee will play a service role to the entire ISE field, enabling all informal learning organizations to benefit from the deliverables and knowledge generated by this project, and as many institutions (ISE and NSE) as possible to participate in the Network.

Deliverables. At a minimum, project deliverables shall include the following (subject to review and modification, with concurrence of Cognizant Program Officer, at completion of Phase I).

*Public Audiences:* "Packages" of exhibits, table top demonstrations, multimedia resources (displays and catalog of stories, program templates, graphics, printed activities,

and interpretive materials (for 100 sites); Immersive Media Environments (3 to 5); Radio programs (30); Public forums (15/yr); Visualization labs (3 sites); Public web site.

*Professional Audiences:* NISE Resource Center/Web Site; Nanoscale Science Forums; Inquiry Workshops; Training for Graduate Students/Post Docs (60); Network Annual Meetings (5).

Partnerships with Existing NSF Awards. The Awardee will seek to achieve synergies between this project and relevant NSF awards, including prior Nanoscale Informal Science Education (NISE) and Nanoscale Instructional Materials Development (NIMD) awards, in addition to the NCLT. Partnerships with existing ISE media projects should enable the Awardee to address the need to extend the audience impact of this project as far as possible beyond science center visitors and science "attentives."

Diversity. Consistent with the goal of broadening participation of underrepresented groups in science and engineering in general, and in NSE fields in particular, the Awardee will seek diversity in all aspects of this Award, including project management and audiences served. In that regard, the Awardee will pursue partnerships with community-based organizations that reach underserved audiences and pursue synergies with ISE awards that involve those organizations or target those audiences.

Credits. All deliverables--including television and radio broadcasts, exhibitions, electronic components such as web pages, publications, and promotional materials--must include a clear indication of the source(s) of support (NSF and any other contributors) and must include the NSF logo and Award number, all in a manner to be approved by ISE. NSF credits normally should be included at both the heads and tails of both broadcast and non-broadcast programs, and placed on the cover of publications. (For the purposes of determining funding credits, NSF support will be considered as a percentage of the total budget.)

Closed Captions. All television programs must have closed captions encoded on the master broadcast tape, and all programs must be broadcast with closed captions.