

# Human and Social Dynamics: Competition for FY 2008 (HSD)

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## Program Solicitation

NSF 08-508

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*Replaces Document(s):*

NSF 06-604

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### National Science Foundation

Directorate for Social, Behavioral & Economic Sciences

Directorate for Biological Sciences

Directorate for Computer & Information Science & Engineering

Directorate for Education & Human Resources

Directorate for Engineering

Directorate for Geosciences

Directorate for Mathematical & Physical Sciences

Office of International Science and Engineering

Office of Polar Programs

**Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

February 19, 2008

Type 1 Full Proposal Deadline

February 22, 2008

Type 2 Full Proposal Deadline

### REVISION NOTES

Fiscal Year 2008 marks the final year of the five year Human and Social Dynamics (HSD) priority area. In FY08, HSD will discontinue the Exploratory Research and HSD Research Community Development (ERCD) track, but will continue to support two types of Full Research proposals: Type 1, with maximum award sizes of \$750,000, and Type 2, with maximum award sizes of \$1,250,000.

### SUMMARY OF PROGRAM REQUIREMENTS

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#### General Information

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**Program Title:**

Human and Social Dynamics (HSD)

## Synopsis of Program:

The Human and Social Dynamics (HSD) priority area fosters breakthroughs in understanding the dynamics of human action and development, as well as knowledge about organizational, cultural, and societal adaptation and change. HSD aims to increase our collective ability to (1) understand the complexities of change; (2) understand the dynamics of human and social behavior at all levels, including that of the human mind; (3) understand the cognitive and social structures that create, define, and result from change; and (4) manage profound or rapid change, and make decisions in the face of changing risks and uncertainty. Accomplishing these goals requires multidisciplinary research teams and comprehensive, interdisciplinary approaches across the sciences, engineering, education, and humanities, as appropriate.

The FY 2008 competition will include three emphasis areas (Agents of Change; Dynamics of Human Behavior; and Decision Making, Risk and Uncertainty). HSD encourages projects investigating complexity and systems thinking, with a goal of revealing the emergent properties of dynamic systems. HSD also encourages projects identifying human drivers of environmental change and exploring the consequences of environmental change on humans. Such research is central in equipping us to handle the most pressing environmental problems for our nation and the world.

## Cognizant Program Officer(s):

- Rita Teutonico, Directorate for Social, Behavioral and Economic Sciences, 905 N, telephone: (703) 292-7118, email: [rteutoni@nsf.gov](mailto:rteutoni@nsf.gov)
- Elizabeth Tran, Directorate for Social, Behavioral and Economic Sciences, 907 N, telephone: (703) 292-5338, email: [etran@nsf.gov](mailto:etran@nsf.gov)

## Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.041 --- Engineering
- 47.049 --- Mathematical and Physical Sciences
- 47.050 --- Geosciences
- 47.070 --- Computer and Information Science and Engineering
- 47.074 --- Biological Sciences
- 47.075 --- Social Behavioral and Economic Sciences
- 47.076 --- Education and Human Resources
- 47.078 --- Office of Polar Programs
- 47.079 --- Office of International Science and Engineering
- 47.080 --- Office of Cyberinfrastructure

## Award Information

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**Anticipated Type of Award:** Standard Grant

**Estimated Number of Awards:** 30 to 40 (Approximately 4 to 6 Type 2 awards and 25 to 30 Type 1 awards.)

**Anticipated Funding Amount:** \$30,000,000 (Approximately \$6,250,000 expected for Type 2 Full Research awards with maximum award sizes of \$1,250,000; and the remainder for Type 1 Full Research awards with maximum award sizes of \$750,000.) These estimates are subject to the availability of funds and the quality of proposals submitted.

## Eligibility Information

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### Organization Limit:

Proposals may only be submitted by the following:

- Universities and colleges (including two-and four-year colleges and community colleges) located and accredited in the US and non-profit organizations in the US. Proposals from individuals, for-profit organizations, or foreign organizations will not be accepted. However, individual researchers and researchers at ineligible organizations (including foreign universities and colleges) may be included on proposals from eligible institutions through subawards or as consultants. Guidance on payment of indirect costs on subawards to foreign organizations can be found in the [NSF Award and Administration Guide, Chapter V.D.1.b](#).

## PI Limit:

An individual may appear as Principal Investigator (PI), co-PI, other senior personnel or investigator on only one HSD proposal submitted in FY 2008 in response to this program solicitation. This limitation includes proposals submitted by a lead organization, any sub-award submitted as part of a proposal, or any collaborative proposal, and this includes all types of projects: i.e. an individual may participate in only one Full Research proposal (either Type 1 or Type 2). Proposals that do not meet this requirement will be returned without review. These restrictions apply to this HSD solicitation only and are not meant to inhibit submissions of proposals by investigators to other NSF activities or programs.

All proposals must include three or more senior personnel from at least two different fields. Proposals involving fewer than three senior personnel will be returned without review. For the purposes of this solicitation, senior personnel include the Principal Investigator (PI), any co-PIs, and any other researchers actively involved in the scientific or technical management of the project. It does not include students, postdocs, or consultants who provide specific expertise on a limited portion of the project.

## Limit on Number of Proposals per Organization:

None Specified

## Limit on Number of Proposals per PI: 1

PIs may submit only one HSD proposal for the FY 2008 competition.

## Proposal Preparation and Submission Instructions

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### A. Proposal Preparation Instructions

- **Letters of Intent:** Not Applicable
- **Preliminary Proposal Submission:** Not Applicable
- **Full Proposals:**
  - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=gpg](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg).
  - Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: <http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf>)

### B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required under this solicitation.
- **Indirect Cost (F&A) Limitations:** Not Applicable
- **Other Budgetary Limitations:** Other budgetary limitations apply. Please see the full text of this solicitation for further information.

### C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

February 19, 2008

Type 1 Full Proposal Deadline

## Proposal Review Information Criteria

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**Merit Review Criteria:** National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

## Award Administration Information

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**Award Conditions:** Standard NSF award conditions apply.

**Reporting Requirements:** Standard NSF reporting requirements apply.

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## I. INTRODUCTION

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The arrival of the twenty-first century has brought with it new hopes and possibilities for improving our quality of life. Revolutionary technologies, social innovations, and adaptations have created a more closely-linked world, within which there is almost instantaneous transmission of information that feeds a global economy. But it is also a world of change, uncertainty, and disruption that leaves many unprepared to respond effectively. The Human and Social Dynamics (HSD) priority area seeks to encourage research by multidisciplinary teams in order to stimulate breakthroughs in knowledge about human action and development as well as organizational, cultural, and societal adaptation and change. HSD encourages research looking at issues of complexity and research investigating human behavior and thought from a systems approach. HSD is also interested in supporting interdisciplinary research on interactions between humans and natural systems.

In this fifth and final year of competition, the FY 2008 HSD priority area will support research within and across three emphasis areas. Together these areas bear on the dynamics of change, behavior at different scales, individual and collective decision making, perceptions of risk and uncertainty, and human responses to changing situations. Topics encompassed by these emphasis areas are ripe for interdisciplinary synergies that hold special promise for important breakthroughs. The three emphasis areas are:

- Agents of Change (AOC)
- Dynamics of Human Behavior (DHB)
- Decision Making, Risk and Uncertainty (DRU)

## II. PROGRAM DESCRIPTION

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Human and Social Dynamics (HSD) is an NSF-wide priority area that includes all NSF disciplines and fields. The focus on dynamics – on how cognitive systems, individuals, formal and informal organizations, cultures, and societies evolve and change over space and time - distinguishes research in the HSD priority area. Projects will explore the dynamics of changes that range in time from nanoseconds to millennia and across scales ranging from the internal workings of the human mind to the interplay of global social and cultural systems.

Understanding the dynamics of individual behavior and social activity increasingly requires partnerships that span the different science and engineering research and education communities, and benefits from international involvement as well. Thus, the convergence of biology, engineering, geosciences, the cognitive and social sciences, mathematical and physical sciences, and computer and information sciences allows the development of basic knowledge about the evolution of individual, group, and organizational behavior with a rigor never before possible. At the same time, the convergence offers scientists, engineers, and educators more realistic models with which to test and transform organizational and classroom practice.

Examination of the dynamic interactions of science, engineering, and technology with persons and social institutions requires integrative research efforts with broad and deep theoretical and methodological sophistication. Geographic information systems and related technologies, together with advances in the multilevel modeling of complex systems and network analysis from engineering, the geosciences, and the mathematical and physical sciences, open new frontiers for understanding such diverse subjects as crime, environmental management, epidemics, linguistic behaviors, societal innovation and adaptation, appropriations of new technologies, and the interplay of biological and social aspects of behavior within our species.

For this competition, proposed activities should contribute to building interdisciplinary communities of researchers and educators prepared to meet the challenges of HSD research. Priority will be given to projects that bring together researchers from fields and disciplines that do not ordinarily collaborate, bearing in mind that the most competitive projects will be those that are broad in scope, with contributions from appropriate fields. Moreover, research teams and other collaborative arrangements through which diverse individuals work together in synergistic ways are required. NSF also encourages HSD projects to include junior researchers as team members and, when appropriate, to develop international collaborative partnerships.

**Full research projects** will support multidisciplinary teams of three or more investigators from at least two different fields in projects that use interdisciplinary approaches to advance fundamental understanding about human and social dynamics. Projects are expected to have significant educational or other broader impacts in addition to advancing fundamental knowledge. HSD will have two funding levels in FY 2008:

**Type 1 Full Research projects** - maximum total award sizes of \$750,000, including indirect costs, and a duration of three years, pending availability of funds.

**Type 2 Full Research projects** - maximum total award sizes of \$1,250,000, including indirect costs, and a duration of three years, pending availability of funds. Examples of projects that may require higher funding levels include (but are not limited to) those with extensive international partnering; those providing significant student involvement; and those developing large, shared data sets.

Most Full Research projects will be in the Type 1 category, with a smaller number of Full Research projects expected in the Type 2 category. Proposals with budgets between \$750,000 and \$1,250,000 will only be considered for the small number (approximately 4 to 6) of Type 2 Full Research awards. They will not be considered for the larger number (approximately 25 to 30) of Type 1 Full Research awards, with maximum award sizes of \$750,000. **PIs should carefully consider whether their project requires a budget over**

**\$750,000 before submission.**

## **A. HSD EMPHASIS AREAS**

All proposals submitted to the Human and Social Dynamics priority area competition **must** identify one of the three emphasis areas described below (Agents of Change; Dynamics of Human Behavior; or Decision Making, Risk, and Uncertainty). Research projects that involve more than one of these emphasis areas are encouraged, but a primary area of emphasis must be identified. NSF encourages the development of models and tools as a part of any proposed research in any of the emphasis areas described below. There is particular interest in path-breaking ideas with relevance to the natural and physical sciences and engineering, as well as the social and behavioral sciences.

### **Agents of Change (AOC)**

Agents of Change (AOC) research focuses on the dynamics that underlie, are part of, or result from large-scale transformational changes. Examples include globalization, environmental and climate change, population migration, infectious disease transmission, democratization, economic transformations, scientific and technological advances, and the development of human societies over time. AOC projects may also focus on processes and outcomes associated with such phenomena as human evolution and the evolution of culture; the interaction of culture with climate, geography, and environment in settings ranging from high-density cities to sparsely populated polar regions; the implications of human and social differences for conflict, cooperation, and assimilation; the implications of large-scale transformational changes for diversity and equality; and adaptation and resistance to technological change and new knowledge.

AOC projects might also explore the dynamics and consequences of more focused systemic, organizational, or policy changes. These may involve political, economic, environmental and educational systems or subsystems, in relationship to phenomena such as technological innovation, economic growth, environmental sustainability, learning, or social equity. Research might examine the reciprocal relationships between organizational and social action or between technological developments and institutional change. It can look at how social systems and their constituent parts react to a wide variety of drivers, ranging from catastrophes, such as war and other disasters, to ideology and terrorism and corruption, to the Internet and home computers. And it can focus on ethical and related issues that are raised by breakthroughs in scientific and engineering knowledge and technological development.

### **Dynamics of Human Behavior (DHB)**

Research in the Dynamics of Human Behavior (DHB) emphasis area focuses on multidisciplinary examinations of dynamics -- change in human behavior over time. Examples include the dynamics through which individuals and organizations (including families and other informal organizations) create, grow, learn, change, and act under the impetus of internal and external stimuli; the influence organizational, community, and environmental structures and processes have on these dynamics; the interplay of evolutionary forces and human behavioral change; and individual cognitive, computational, linguistic, developmental, social, biological, and other processes as dynamic evolving systems. These processes include systems of coordination and control in the behavior of individuals, the dynamics of coordination between individuals, and the dynamics of change across the lifespan of individuals and organizations.

DHB projects may draw upon formal concepts about dynamics from biology and mathematics, the physical sciences, or information science and engineering to characterize dynamic behavior, such as work that calls upon complexity theory, agent-based or animal models, cognitive models, stochastic models, dynamical systems theory, and bifurcation analysis. The interdisciplinary nature of the work may link the behavior of individuals and/or organizations and their social, cognitive or biological underpinnings, as they evolve over varying time scales, to influences including natural and built environments, geographical contexts, and social networks. Any tools and models for understanding human behavior that are developed as part of this competition should have applications across a broad array of HSD challenges.

### **Decision Making, Risk, and Uncertainty (DRU)**

The Decision Making, Risk, and Uncertainty (DRU) emphasis area is concerned with the dynamics of human and societal attempts to identify, characterize, evaluate, and manage situations that call for choices and decisions, and involve changing perceptions of uncertainty and risk. Risks and uncertainties may be strategic – that is, dependent upon a judgment about what others will do – or may result from incomplete information about a situation, either unknown or unknowable. Risks and uncertainties can also arise from the objectives, priorities, desires and needs of individuals, groups, organizations, and institutions. Decision arenas of HSD interest include not just individual judgment but also governmental, industrial or corporate decisions, and multiple levels of group collective decisions.

DRU projects may focus on comparing the dynamics of, and variations in, the mental and organizational processes that underlie risk evaluation or decision making in the face of uncertainty. They may focus on the challenges posed to risk assessment or decision making by the need to evaluate and adapt to changing social and environmental circumstances, especially rapid or unanticipated changes and system shocks. They may, for example, develop interdisciplinary models or tools that improve decision making under uncertainty, identify new indicators to capture the influence of spatial and temporal variability, or use stochastic methods or combined qualitative and quantitative representations of information to characterize uncertainty and to improve risk assessment and decision making practices.

## B. GENERAL INFORMATION REGARDING ALL EMPHASIS AREAS

NSF has special interest in proposals that develop and employ innovative approaches in the study of human and social dynamics and include research personnel from all ranks, who are representative of the diversity in US society. When appropriate, international collaborative partnerships are encouraged. HSD encourages research-intensive and extensive universities to partner with other types of colleges and universities, especially ones serving underrepresented minority populations.

All HSD proposals will be evaluated with respect to their intellectual merit, their broader impacts, and their responsiveness to the goals of the HSD competition. To that end, HSD-specific review criteria have been established (see "Additional Review Criteria" in section VI) and reviewers will be directed to comment on these criteria. Multidisciplinary advisory panels will evaluate all proposals.

Proposals submitted to the Human and Social Dynamics priority area may be of interest to other federal agencies. If so, NSF will ask investigators whether they are willing to have their proposals co-reviewed, prior to initiating any contact.

In addition to conducting the work outlined in their proposals, principal investigators are expected to attend annual HSD principal investigator meetings in the Washington, DC area. These meetings will enable awardees to develop into a community of human and social dynamics researchers, establish connections and networks, share project results, discuss issues of common interest, and participate in activities designed to facilitate the integration of research and education and integrate diversity into project activities. Proposers are expected to include in their proposal budgets the costs for one to two team members to participate in these annual meetings.

## III. AWARD INFORMATION

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**Anticipated Type of Award:** Standard Grant

**Estimated Number of Awards:** 30 to 40 (Approximately 4 to 6 Type 2 awards and 25 to 30 Type 1 awards.)

**Anticipated Funding Amount:** \$30,000,000 (Approximately \$6,250,000 expected for Type 2 Full Research awards with maximum award sizes of \$1,250,000; and the remainder for Type 1 Full Research awards with maximum award sizes of \$750,000.) These estimates are subject to the availability of funds and the quality of proposals submitted.

## IV. ELIGIBILITY INFORMATION

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### Organization Limit:

Proposals may only be submitted by the following:

- Universities and colleges (including two- and four-year colleges and community colleges) located and accredited in the US and non-profit organizations in the US. Proposals from individuals, for-profit organizations, or foreign organizations will not be accepted. However, individual researchers and researchers at ineligible organizations (including foreign universities and colleges) may be included on proposals from eligible institutions through subawards or as consultants. Guidance on payment of indirect costs on subawards to foreign organizations can be found in the [NSF Award and Administration Guide, Chapter V.D.1.b.](#)

## PI Limit:

An individual may appear as Principal Investigator (PI), co-PI, other senior personnel or investigator on only one HSD proposal submitted in FY 2008 in response to this program solicitation. This limitation includes proposals submitted by a lead organization, any sub-award submitted as part of a proposal, or any collaborative proposal, and this includes all types of projects: i.e. an individual may participate in only one Full Research proposal (either Type 1 or Type 2). Proposals that do not meet this requirement will be returned without review. These restrictions apply to this HSD solicitation only and are not meant to inhibit submissions of proposals by investigators to other NSF activities or programs.

All proposals must include three or more senior personnel from at least two different fields. Proposals involving fewer than three senior personnel will be returned without review. For the purposes of this solicitation, senior personnel include the Principal Investigator (PI), any co-PIs, and any other researchers actively involved in the scientific or technical management of the project. It does not include students, postdocs, or consultants who provide specific expertise on a limited portion of the project.

## Limit on Number of Proposals per Organization:

None Specified

## Limit on Number of Proposals per PI: 1

PIs may submit only one HSD proposal for the FY 2008 competition.

## V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

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### A. Proposal Preparation Instructions

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**Full Proposal Preparation Instructions:** Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=gpg](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg). Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from [pubs@nsf.gov](mailto:pubs@nsf.gov). Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.
- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (<http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf>). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from [pubs@nsf.gov](mailto:pubs@nsf.gov).

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

**Collaborative Proposals.** All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.3 of the Grant Proposal Guide provides additional information on collaborative proposals.

Instructions for HSD proposal preparation are detailed below.

The information below supplements the standard proposal preparation guidelines in the GPG and the NSF Grants.gov Application Guide. It pertains to all HSD submissions.



## Proposal Cover Sheet.

- **FastLane Users:** Indicate the solicitation number in the PROGRAM ANNOUNCEMENT/SOLICITATION NO./ CLOSING DATE block and select "Human and Social Dynamics" as the Program in the Unit Selection List. Begin your title with the one acronym corresponding to the primary area of emphasis (AOC, DHB, or DRU) chosen for your proposal. Failure to submit this information may delay or prevent processing. If your project includes **international activities**, you must check the box for "International Cooperative Activities Country Name" that appears under Other Information when the "remainder of cover sheet" is clicked, then select the countries involved.
- **Grants.gov Users:** The HSD program solicitation number will be pre-populated by Grants.gov on the NSF Grant Application Cover Page. On the SF 424 (R&R) (Cover Sheet), enter the related preliminary proposal number in Field and enter your title -- beginning with the one acronym corresponding to the primary area of emphasis (AOC, DHB, or DRU) -- in Field 11. Failure to submit this information may delay or prevent processing. If your project includes **international activities**, you must check "yes" in Field 5a. and list the countries involved in Field 5b.

**NOTE: For all proposals, a starting date of August 1, 2008 or later should be requested.**

**Project Summary.** Provide a summary description of the HSD project, including its research or development theme and key innovative features, in a manner that will be informative to a general technical audience. If the project includes international activities, they should be included in the project summary also. Project Summaries must be written carefully to explicitly point to and detail the two NSF evaluation criteria -- intellectual merit and broader impacts -- in separate paragraphs. **If the project summary does not explicitly address both the intellectual merit and the broader impacts of the proposed activity, the proposal will be returned without review.** At the top of this page include the title of the HSD project, the name of the principal investigator, and the lead organization. Also list any other participating institutions/organizations, including international collaborators.

**Table of Contents:** The Table of Contents is system generated and cannot be edited.

**Project Description.** Project Descriptions are limited to 20 pages total, including several specific required parts described below. This 20 page limit does not include pages devoted to references, the project budget, or supplementary documentation. The project description includes:

**a. Prior Results:** Proposals must include relevant prior results from NSF support.

**b. Description of Research and Education Activities:** The description should provide a clear statement of the research and education activities to be undertaken. It should include the empirical and theoretical foundations of the work, with reference to relevant work of the applicants and others; details of the methods to be used; and explain the significance of the outcomes. The narrative should reflect the intellectual merit of the work, and its innovativeness. As appropriate, a clear description of qualitative, quantitative, or experimental methods and procedures, and plans for interpretation or analysis, and for preservation, documentation, and sharing of data, samples, and physical collections should be provided. Projects involving international collaborations or other activities should describe them here. The broader impacts of the proposed activities should be an integral part of the narrative.

**Management Plan (3 pages maximum as part of the 20 page project description):** Each Full Research proposal must contain a management plan, which includes 1) the specific roles of the PI, co-PIs, other senior personnel and paid consultants at all organizations involved; 2) how the project will be managed within and across organizations and disciplines; 3) identification of the specific coordination mechanisms that will enable cross-institution and/or cross-discipline scientific integration (e.g., regular meetings or teleconferencing, yearly workshops, graduate student exchange, project meetings at conferences, videoconferences, software repositories, etc.); and 4) pointers to the budget line items that support these coordination mechanisms.

**Biographical Sketches.** Each proposal must include biographical sketches for all senior investigators, and also include biographical sketches for principal foreign collaborators. All biographical sketches must adhere to the format given in the GPG.

**Project Budget.** The budget justification (up to 3 pages) should explain and justify major cost items. For undergraduate and graduate student participants and postdoctoral associates, include a breakdown of costs by types of participants. The budget should include costs for one or two team members to participate in annual HSD principal investigator meetings in the Washington, DC area. The total maximum budget for Type 1 Full Research proposals is \$750,000 (including indirect costs) and the total maximum budget for Type 2 Full Research proposals is \$1,250,000; proposals exceeding these limits will be returned without review.

Proposals with budgets between \$750,000 and \$1,250,000 will only be considered for the small number (approximately 4 to 6) of Type 2 awards. They will not be considered for the larger number (approximately 25 to 30) of Type 1 awards, with maximum award sizes of \$750,000. **PIs should carefully consider whether their project requires a budget over \$750,000 before submission.**

**Special Information and Supplementary Documentation.** No supplementary documentation will be accepted except for letters indicating access to sites or data for research, as needed, and certifications associated with the use of human or animal subjects. **Letters of support and survey protocols are specifically not allowed.**

**All HSD project descriptions should address the following special criteria. Reviewers will be asked to use these criteria to evaluate the proposals:**

**Fit to Human and Social Dynamics.** HSD projects will enable novel and innovative activities not usually supported through other existing NSF programs. The project description should address the expected project significance: how its intellectual merits and broader impacts will add to the fundamental knowledge base across relevant fields related to human and social dynamics and how it will enhance the capabilities of people who engage in research and/or education in these areas.

**Multidisciplinarity and Interdisciplinarity.** The HSD competition intends particularly to stimulate research that brings together seldom-linked fields in new partnerships. Multidisciplinary contributions from members of the research team to the interdisciplinary goals of the project and contributions to separate or interdisciplinary fields should be identified and explained in the project description.

#### ***Proposals Involving Multiple Organizations***

Proposals involving multiple organizations may be submitted in one of two ways: (1) as a single proposal with one organization serving as the lead organization and with support to other organizations provided through subawards, or (2) as a collaborative proposal, where each submitting organization must meet the eligibility criteria outlined in section IV. Organizations eligible to submit proposals include universities and colleges (including two- and four-year colleges and community colleges) located and accredited in the US, acting on behalf of their faculty members. In addition, non-profit organizations in the US may submit proposals. Please note that all collaborative proposals submitted as separate submissions from multiple organizations must be submitted via FastLane. Chapter II, Section D.3 of the GPG provides additional information on collaborative proposals.

#### ***Proposals Involving Collaborators at Foreign Organizations***

Proposers are reminded they must provide biographical sketches of all senior project personnel, including those at foreign organizations. In addition, as supplementary documentation, proposals involving foreign collaborators should provide documentation of a willingness to collaborate through letters of commitment from the international counterpart organizations. Please note that although eligibility for this competition is restricted to US organizations, as described in section III of this solicitation, collaborations with foreign organizations may be considered.

Projects with international activities should include: a) details on the complementary expertise of the US and foreign partners; b) a description of the proposed contributions and division of labor among participating researchers and institutions; c) plans for involving US students and junior researchers.

#### ***Human Subjects***

If the project involves human subjects, the Institutional Review Board (IRB) of the submitting organization must certify that the proposed project is in compliance with the Federal Government's "Common Rule" for the protection of human subjects. If IRB approval has been obtained and the date of approval is listed on the cover sheet, no other certification is required. If IRB approval is still pending, submit certification of IRB approval in electronic form as soon as approval is obtained to the cognizant program officer. (The name of this program officer will be listed in the Proposal Status module of FastLane.) Delays in obtaining IRB certification may result in NSF being unable to make an award. For more information regarding the protection of human subjects, consult <http://www.nsf.gov/bfa/dias/policy/hsfaqs.jsp>.

## **B. Budgetary Information**

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**Cost Sharing:** Cost sharing is not required under this solicitation.

#### **Other Budgetary Limitations:**

**HSD Full Research** proposals have maximum award sizes of either \$750,000 (Type 1) or \$1,250,000 (Type 2). Proposals with budgets between \$750,000 and \$1,250,000 will only be considered for the small number (approximately 4 to 6) of Type 2 Full Research awards. They will not be considered for the larger number (approximately 25 to 30) of Type 1 Full Research awards, with maximum award sizes of \$750,000. PIs should carefully consider whether their project requires a budget over \$750,000 before submission.

**PI Meeting:** At least one PI, co-PI, or senior personnel from each project is required to attend annual meetings of HSD principal investigators in the Washington, DC area. **Costs for this participation must be included in the budget.**

### C. Due Dates

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- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

February 19, 2008

Type 1 Full Proposal Deadline

February 22, 2008

Type 2 Full Proposal Deadline

### D. FastLane/Grants.gov Requirements

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- **For Proposals Submitted Via FastLane:**

Detailed technical instructions regarding the technical aspects of preparation and submission via FastLane are available at: <https://www.fastlane.nsf.gov/a1/newstan.htm>. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail [fastlane@nsf.gov](mailto:fastlane@nsf.gov). The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

**Submission of Electronically Signed Cover Sheets.** The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the Grant Proposal Guide for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Further instructions regarding this process are available on the FastLane Website at: <https://www.fastlane.nsf.gov/fastlane.jsp>.

- **For Proposals Submitted Via Grants.gov:**

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. The Grants.gov's Grant Community User Guide is a comprehensive reference document that provides technical information about Grants.gov. Proposers can download the User Guide as a Microsoft Word document or as a PDF document. The Grants.gov User Guide is available at: <http://www.grants.gov/CustomerSupport>. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: [support@grants.gov](mailto:support@grants.gov). The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

**Submitting the Proposal:** Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

## VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

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Proposals received by NSF are assigned to the appropriate NSF program where they will be reviewed if they meet NSF proposal preparation requirements. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with the oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal.

## A. NSF Merit Review Criteria

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All NSF proposals are evaluated through use of the two National Science Board (NSB)-approved merit review criteria: intellectual merit and the broader impacts of the proposed effort. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two NSB-approved merit review criteria are listed below. The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which the reviewer is qualified to make judgements.

### **What is the intellectual merit of the proposed activity?**

How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

### **What are the broader impacts of the proposed activity?**

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?

Examples illustrating activities likely to demonstrate broader impacts are available electronically on the NSF website at: <http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>.

NSF staff also will give careful consideration to the following in making funding decisions:

### ***Integration of Research and Education***

One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

### ***Integrating Diversity into NSF Programs, Projects, and Activities***

Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

### **Additional Review Criteria:**

In addition to the general criteria described above, the following criteria will be considered by peer reviewers and NSF staff in evaluating proposals submitted in response to this solicitation:

- Does the research team thoroughly integrate the perspectives of two or more disciplines, particularly seldom-linked disciplines, to specifically address issues in human and social dynamics -- agents of change, dynamics of human behavior, or decision making, risk and uncertainty?
- Does the proposal provide a well-conceived management plan that will enhance the likelihood of success for interdisciplinary research and development efforts?

## B. Review and Selection Process

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Proposals submitted in response to this program solicitation will be reviewed by Panel Review.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

## VII. AWARD ADMINISTRATION INFORMATION

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### A. Notification of the Award

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Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

### B. Award Conditions

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An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (GC-1); \* or Federal Demonstration Partnership (FDP) Terms and Conditions \* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

\*These documents may be accessed electronically on NSF's Website at [http://www.nsf.gov/awards/managing/general\\_conditions.jsp?org=NSF](http://www.nsf.gov/awards/managing/general_conditions.jsp?org=NSF). Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from [pubs@nsf.gov](mailto:pubs@nsf.gov).

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=aag](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag).

### C. Reporting Requirements

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For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period. (Some programs or awards require more frequent project reports). Within 90 days after expiration of a grant, the PI also is required to submit a final project report.

Failure to provide the required annual or final project reports will delay NSF review and processing of any future funding increments as well as any pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through FastLane, for preparation and submission of annual and final project reports. Such reports provide information on activities and findings, project

participants (individual and organizational) publications; and, other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system. Submission of the report via FastLane constitutes certification by the PI that the contents of the report are accurate and complete.

## VIII. AGENCY CONTACTS

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General inquiries regarding this program should be made to:

- Rita Teutonico, Directorate for Social, Behavioral and Economic Sciences, 905 N, telephone: (703) 292-7118, email: [rteutoni@nsf.gov](mailto:rteutoni@nsf.gov)
- Elizabeth Tran, Directorate for Social, Behavioral and Economic Sciences, 907 N, telephone: (703) 292-5338, email: [etran@nsf.gov](mailto:etran@nsf.gov)

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: [fastlane@nsf.gov](mailto:fastlane@nsf.gov).

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: [support@grants.gov](mailto:support@grants.gov).

For questions involving the HSD emphasis areas, contact :

### **Agents of Change (AOC)**

Brian Humes, Directorate for Social, Behavioral and Economic Sciences  
phone: 703-292-7284  
email: [bhumes@nsf.gov](mailto:bhumes@nsf.gov)

Nancy Huntly, Directorate for Biological Sciences  
phone: 703-292-8061  
email: [nhuntly@nsf.gov](mailto:nhuntly@nsf.gov)

### **Dynamics of Human Behavior (DHB)**

Amber Story, Directorate for Social, Behavioral and Economic Sciences  
phone: 703-292-7249  
email: [astory@nsf.gov](mailto:astory@nsf.gov)

### **Decision Making, Risk, and Uncertainty (DRU)**

Robert O'Connor, Directorate for Social, Behavioral and Economic Sciences  
phone: 703-292-7263  
email: [roconnor@nsf.gov](mailto:roconnor@nsf.gov)

Dennis Wenger, Directorate for Engineering  
phone: 703-292-8606  
email: [dwenger@nsf.gov](mailto:dwenger@nsf.gov)

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For questions about **International Activities**, contact

Bonnie Thompson, Office of International Science and Engineering  
phone: 703-292-7248  
email: [bthomps@nsf.gov](mailto:bthomps@nsf.gov)

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## General Inquiries

Rita Teutonico, Directorate for Social, Behavioral and Economic Sciences  
phone: 703-292-7118  
email: [rteutoni@nsf.gov](mailto:rteutoni@nsf.gov)

Elizabeth Tran, Directorate for Social, Behavioral and Economic Sciences  
phone: 703-292-5338  
email: [etran@nsf.gov](mailto:etran@nsf.gov)

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## IX. OTHER INFORMATION

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The NSF Website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this Website by potential proposers is strongly encouraged. In addition, MyNSF (formerly the Custom News Service) is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Regional Grants Conferences. Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. MyNSF also is available on NSF's Website at <http://www.nsf.gov/mynsf/>.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this new mechanism. Further information on Grants.gov may be obtained at <http://www.grants.gov>.

## ABOUT THE NATIONAL SCIENCE FOUNDATION

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The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 40,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

*Facilitation Awards for Scientists and Engineers with Disabilities* provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.



The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at <http://www.nsf.gov>

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
- **For General Information** (NSF Information Center): (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**  
  
Send an e-mail to: [pubs@nsf.gov](mailto:pubs@nsf.gov)  
or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

## PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

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The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton  
Reports Clearance Officer  
Division of Administrative Services  
National Science Foundation  
Arlington, VA 22230



