

California State University, Northridge

# NSF Introductory Module

---

# What Can I Fund?

---

Developmental (new investigator or new area)

Research

Community outreach/centers -- service

Program development or change

Training (MARC, RISE, others) – workforce diversity

Construction or equipment – enable development of buildings, renovation, etc.

Conferences or meetings

Centers

Service provision





# Where Can I Find Funding?

---

## Public

NIH, NSF, DOE, DOJ, state, local

Usually more \$

More space to write about project

Can be basic or applied projects

Greater freedom

Greater indirect costs (~45% for federal)

Annual progress report

## Private

CA Wellness, CA Endowment, RWJF

Usually more tied to applied research or projects

Concise, related to mission

Sometimes directive

Smaller or no indirect costs (often 8%)

Often quarterly progress report

# Collaborating

---

Begin to assemble the research study team **early**.

If you have identified collaborators, you will need to include **letters of commitment** in your application that clearly state their roles. The grant application should contain a signed letter from each collaborator to the applicant that **lists the contribution** he or she intends to make and his or her enthusiasm for the work. These letters are often crucial information for the reviewers.

Investigate opportunities for **collaborating** with more experienced, **well-known grantees**, or a known laboratory. Collaborators can fill gaps in your own expertise and resources and can assure reviewers of the competence of your proposed team.

# More on Collaboration

---

Consider a Multiple PD/PI Model: If your work includes multidisciplinary efforts and collaboration where a team science approach could be more effective, then you should consider the [multiple-PI model](#). The format, peer review and administration of applications submitted under the multiple-PI model do have some **significant differences** from the traditional single-PI model which will need to be taken into consideration as you plan. Therefore, as with the preparation of any research proposal, it is essential that you consider all aspects of the funding mechanism before submitting an application.

All applicants proposing team science efforts are strongly encouraged to contact their NIH program officials at the earliest possible date to discuss the appropriateness of the multiple-PI model for the support of their research.

For consultants, you will need to include letters that reflect the rate/charge for consulting services.

Issues with division of \$

# National Institutes of Health

---

The National Institutes of Health (NIH), a part of the [U.S. Department of Health and Human Services](#), is the nation's medical research agency—making important **discoveries that improve health and save lives**.

NIH is the largest source of funding for medical research in the world, creating hundreds of thousands of high-quality jobs by funding thousands of scientists in universities and research institutions in every state across America and around the globe.

# PubMed

---

NIH Library Materials via PubMed

<http://www.ncbi.nlm.nih.gov/pubmed/>

# NIH the Big Picture

---

[https://www.youtube.com/watch?v=rNwsg\\_PR90w&feature=player\\_embedded&list=PLOEUwSnjvqBJNvVxAEHDaR6ZJxg7TI6eM](https://www.youtube.com/watch?v=rNwsg_PR90w&feature=player_embedded&list=PLOEUwSnjvqBJNvVxAEHDaR6ZJxg7TI6eM)

Tips for Applicants at the NIH (4:37):

<http://www.youtube.com/watch?v=IAOGtr0pM6Q>

Early Career Review Program at the NIH CSR (6:34):

<http://www.youtube.com/watch?v=dtKwYgiuh7M>

What Happens to Your NIH Application (22:13)?

[http://www.youtube.com/watch?v=DuuAGROm\\_1Q](http://www.youtube.com/watch?v=DuuAGROm_1Q)

Video of the Peer Review Process at the NIH (14:51):

<http://www.youtube.com/watch?v=fBDxI6I4dOA&feature=youtu.be>

Strategic Plan for Obesity Research at the NIH (Francis Collins; 4:17)

<http://www.youtube.com/watch?v=VIH6I5Jf9Xc>

# NIH Mechanisms

---

**R Series**

Research Grants

**K Series**

Career Development Awards

**T/F Series**

Research Training/Fellowships

**P Series Program**

Project/Center Grants

**Resource Grants**

**Early Stage Investigators**

10 years since terminal degree

# Types of Research/Career Grants at NIH

---

- R01** Research Project Grant \$lots/3-5 years
- R03** Small Grant \$50,000/PER 2 years
- R15** Academic Research Enhancement Award (AREA) \$300,000 (total)/3 yrs
- R21** Exploratory/Developmental \$275,000 (total)/2yrs
- R13** Conferences, Scientific Meetings
- K01** Mentored Research Scientist Development

# Who's your Institute?

---

National Cancer Institute (NCI)

National Eye Institute (NEI)

National Heart, Lung, and Blood Institute (NHLBI)

National Human Genome Research Institute (NHGRI)

National Institute on Aging (NIA)

National Institute on Alcohol Abuse and Alcoholism (NIAAA)

National Institute of Allergy and Infectious Diseases (NIAID)

National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)

National Institute of Biomedical Imaging and Bioengineering (NIBIB)

*Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD)

# Or...

---

National Institute on Deafness and Other Communication Disorders (NIDCD)

National Institute of Dental and Craniofacial Research (NIDCR)

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)

National Institute on Drug Abuse (NIDA)

National Institute of Environmental Health Sciences (NIEHS)

National Institute of General Medical Sciences (NIGMS)

National Institute of Mental Health (NIMH)

National Institute on Minority Health and Health Disparities (NIMHD)

National Institute of Neurological Disorders and Strokes (NINDS)

National Institute of Nursing Research (NINR)

National Library of Medicine (NLM)

# NIH Centers

---

Center for Information Technology (CIT)

Center for Scientific Review (CSR)

Fogarty International Center (FIC)

National Center for Advancing Translational Sciences (NCATS)

National center for Complementary and Alternative Medicine (NCCAM)

NIH Clinical Center (CC)

# Funding Rates

	R01 Success	R03 Success	R15 Success	R21 Success
FIC	18.8	9.9	NA	35.7
NCI	14.6	14.6	13	10.6
NEI	27.9	NA	16.7	14.5
NHLBI	15.9	0	13.9	14.5
NHGRI	27.8	15.8	0	13.3
NIA	13.1	15.8	3.3	11.3
NIAAA	20.6	13.3	4.8	17.2
NIAID	15.1	20.3	14.5	16.6
NIAMS	17.4	14	7.7	13
NIBIB	17.3	13.5	6.1	11.2
NICHD	12.1	12.5	10.1	8.4
NIDCD	26.1	30.3	8	11.8
NIDCR	21.9	18.2	8	10.4
NIDDK	18.2	46.8	6.6	8.8
NIDA	19.8	19.6	14.3	19.4
NIEHS	14.7	19.7	20.4	12.4
NIGMS	20.8	NA	14.8	9
NIMH	19.5	10.1	17.2	16.9
NIMHD	4.1	0	NA	12.5
NINDS	19.8	18	13.7	17.3
NINR	11.6	4.3	16.7	5.1
NLM	16.4	NA	0	3.4
NCCAM	11.8	NA	15.8	6.3

# NIH Evaluation Criteria

---

**Significance.** Does the project address an **important problem** or a **critical barrier** to progress in the field? If the aims of the project are achieved, how will scientific knowledge, technical capability, and/or clinical practice be improved? How will successful completion of the aims change the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field?

**Investigator(s).** Are the PD/PIs, collaborators, and other researchers **well suited to the project**? If **Early Stage Investigators or New Investigators**, or in the early stages of independent careers, do they have appropriate experience and training? If established, have they demonstrated an ongoing record of accomplishments that have advanced their field(s)? If the project is collaborative or **multi-PD/PI**, **do the investigators have complementary and integrated expertise**; are their **leadership approach, governance and organizational structure** appropriate for the project?

**Innovation.** Does the application challenge and seek to **shift current research or clinical practice paradigms** by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions? Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense? Is a refinement, improvement, or new application of theoretical concepts, approaches or methodologies, instrumentation, or interventions proposed?

# NIH Evaluation Criteria

---

**Approach.** Are the overall strategy, methodology, and analyses **well-reasoned and appropriate to accomplish the specific aims of the project**? Are **potential problems**, alternative strategies, and benchmarks for success presented? If the project is in the early stages of development, will the strategy establish feasibility and will particularly risky aspects be managed? If the project involves clinical research, are the plans for

1) **Protection of human subjects from research risks**

2) **Inclusion** of minorities and members of both sexes/genders, as well as the inclusion of children, justified in terms of the scientific goals and research strategy proposed?

**Environment.** Will the scientific environment in which the work will be done contribute to the probability of success? Are the **institutional support, equipment and other physical resources available to the investigators adequate** for the project proposed? Will the project benefit from unique features of the scientific environment, subject populations, or collaborative arrangements?

# Scoring

---

1-9, low numbers are better

- 1      Exceptional
- 2      Outstanding
- 3      Excellent
- 4      Very Good
- 5      Good
- 6      Satisfactory

Below 6 – NO WAY!

Averaged to be 10-90 Impact Score

# NSF Program Areas

---

Crosscutting and NSF-Wide

Biological Sciences

Computer & Information Science & Engineering

Education and Human Resources

Engineering

Environmental Research & Education

Geosciences

International & Integrative Activities

Mathematical & Physical Sciences

Social, Behavioral, & Economic Sciences

# NSF Special Programs

---

For undergraduate students

For graduate students

For postdoctoral fellows

For K-12 educators

Small business programs

For veterans

Broadening participation

# Social, Behavioral, and Economic Sciences (SBE)

---

Behavioral and Cognitive Sciences (BCS)

National Center for Science and Engineering Statistics (NCSES)

Social and Economic Sciences (SES)

SBE Office of Multidisciplinary Activities (SMA)

# Behavioral and Cognitive Sciences

---

- The Division of Behavioral and Cognitive Sciences (BCS) supports research to develop and advance scientific knowledge about humans spanning areas of inquiry including **brain and behavior, language and culture, origins and evolution, and geography and the environment.**
- In addition to the core program areas, BCS sponsors several additional crosscutting and NSF-wide funding opportunities.

# Behavioral and Cognitive Sciences

---

- **Anthropological Sciences:** Biological Anthropology, Cultural Anthropology, Cultural Anthropology Scholars Awards, High-Risk Research in Biological Anthropology and Archaeology (HRRBAA)
- **Geography and Environmental Sciences:** Dynamics of Coupled Natural and Human Systems (CNH), Geography and Spatial Sciences Program (GSS), Long-Term Ecological Research (LTER)
- **Psychological and Language Sciences:** Cognitive Neuroscience, Developmental and Learning Sciences (DLS), Linguistics, Perception, Action & Cognition (PAC), Social Psychology

# Social Psychology

---

- The **Social Psychology Program** at NSF supports basic research on human social behavior, including cultural differences and development over the life span.
- Among the many research topics supported are: attitude formation and change, social cognition, personality processes, interpersonal relations and group processes, the self, emotion, social comparison and social influence, and the psychophysiological and neurophysiological bases of social behavior.

# Social Psychology Funded Grants

---

[African American Racial Identity and Coping with Racial Stressors](#)

[Collaborative Research: Grounding the Behavioral Immune System in Mental and Physiological Processes](#)

[The Construal of Situations](#)

# Sociology (SES)

---

- The Sociology Program supports basic research on all forms of human social organization -- societies, institutions, groups and demography -- and processes of individual and institutional change.
- The Program encourages theoretically focused empirical investigations aimed at improving the explanation of fundamental social processes. Included is research on organizations and organizational behavior, population dynamics, social movements, social groups, labor force participation, stratification and mobility, family, social networks, socialization, gender roles, and the sociology of science and technology.
- The Program supports both original data collections and secondary data analysis that use the full range of quantitative and qualitative methodological tools. Theoretically grounded projects that offer methodological innovations and improvements for data collection and analysis are also welcomed.
- Special program: Strengthening Qualitative Research through Methodological Innovation and Integration

# SBE Office of Multidisciplinary Activities (SMA)

---

- SMA provides a focal point for programmatic activities that cut across NSF and SBE boundaries, and is SBE's broadest mechanism for contributing to Administration and NSF priorities.
- While all SBE divisions pursue interdisciplinary work, SMA assists with seeding **multidisciplinary** activities for the future and plays a critical role in the development of **infrastructure to support interdisciplinary activities**. SMA also funds Science of Science and Innovation Policy (SciSIP), Research Experiences for Undergraduates (REU) Sites programs, SBE Postdoctoral Research Fellowships (SPRF), and the agency-wide Science of Learning Centers (SLCs).
- Co-funding with other divisions in SBE and with other directorates is typical for SMA, as is participation in interagency activities. All areas of SBE sciences are represented in the SMA portfolio.

# IBSS (SMA)

---

- Promotes the conduct of interdisciplinary research by teams of investigators in the social and behavioral sciences.
- Emphasis is placed on support for research that involves researchers from multiple disciplinary fields, that integrates scientific theoretical approaches and methodologies from multiple disciplinary fields, and that is likely to yield generalizable insights and information that will advance basic knowledge and capabilities across multiple disciplinary fields.
- Large: \$1,000,000; Exploratory Projects \$250,000 max over 2 years

# Major Research Instrumentation

---

- The Major Research Instrumentation Program (MRI) serves to increase access to shared scientific and engineering instruments for research and research training in our Nation's institutions of higher education, museums, science centers, and not-for-profit organizations.
- This program especially seeks to improve the quality and expand the scope of research and research training in science and engineering, by providing shared instrumentation that fosters the integration of research and education in research-intensive learning environments.
- Development and acquisition of research instrumentation for shared inter- and/or intra-organizational use are encouraged, as are development efforts that leverage the strengths of private sector partners to build instrument development capacity at academic institutions.

# Developmental Awards

---

- *CAREER*: The Faculty Early Career Development (CAREER) Program is a Foundation-wide activity that offers the National Science Foundation's most prestigious awards in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research within the context of the mission of their organizations.
- Such activities should build a firm foundation for a lifetime of leadership in integrating education and research. NSF encourages submission of CAREER proposals from junior faculty members at all CAREER-eligible organizations and especially encourages women, members of underrepresented minority groups, and persons with disabilities to apply.
- (July 21-23); Minimum \$400,000 over 5 years, UNTENURED, not associate professor

# Research in Undergraduate Institutions

---

- Faculty-student research
- Shared equipment
- Opportunities to study with researchers at other institutions.

# Other NSF Grants

---

- Innovation and Organizational Change
- Methodology, Measurement, and Statistics
- Social Psychology
- Cognitive Neuroscience
- Mathematical Social and Behavioral Sciences
- Political Science
- Law and Social Sciences
- Linguistics
- Developmental and Learning Sciences

# Evaluation – Broader Impacts

---

Broader Impacts *“encompasses the potential to **benefit society** and contribute to the achievement of specific, desired societal outcomes”*

“Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project.”

# Evaluation – Intellectual Merit

---

Intellectual Merit “encompasses the **potential to advance knowledge**”

Such outcomes include, but are not limited to:

- full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM);
- improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology;
- improved well-being of individuals in society;
- development of a diverse, globally competitive STEM workforce;
- increased partnerships between academia, industry, and others;
- improved national security;
- increased economic competitiveness of the United States; and enhanced infrastructure for research and education.”

# Regarding Both

---

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to:
  - a. **Advance knowledge and understanding** within its own field or across different fields (Intellectual Merit); and
  - b. **Benefit society** or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially **transformative concepts**?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a **sound rationale**? Does the plan incorporate a mechanism to **assess success**?
4. How well **qualified** is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate **resources** available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

# Rating Scale

---

[http://nsf.gov/bfa/dias/policy/merit\\_review/](http://nsf.gov/bfa/dias/policy/merit_review/)

- **1.0 virtually flawless**, with negligible weaknesses
- **1.5 extremely strong**, with a few minor weaknesses
- **2.0 very strong**, but with moderate weaknesses
- **2.5 strong**, but with some major weaknesses that must be addressed
- **3.0 fair**, neutral balance of strengths and weaknesses
- **3.5 weak**, but with some major strengths
- **4.0 very weak**, but with some moderate strengths
- **4.5 extremely weak**, with a few minor strengths
- **5.0 virtually without merit**, with negligible strengths

# Russell Sage Foundation Areas of Funding

---

RSF now carries out that mission by sponsoring rigorous social scientific research as a means of diagnosing social problems and improving social policies. In sponsoring this research, the Foundation is dedicated to strengthening the methods, data, and theoretical core of the social sciences. The Foundation's awards are restricted to support for social science research within the following five program areas:

**Behavioral Economics** – The program in Behavioral Economics focuses on research that incorporates insights of psychology into the study of economic behavior, with a particular focus on improving consumer financial decision making.

**Cultural Contact** – The program in Cultural Contact is focused on research that examines the effects of cultural difference on the ways in which different groups in the population understand and interact with one another, and with particular attention to the response of economic, social, and political institutions in the US to increasing diversity.

**Future of Work** – The program in the Future of Work is concerned primarily with examining the causes and consequences of the declining quality of jobs for less- and moderately-educated workers in the U.S. economy and the role of changes in employer practices. The program is also concerned with the nature of the labor market and public policies on the employment, earnings, and job quality of American workers.

**Immigration** – The program in Immigration focuses on research that examines social, economic, political, and community changes in the context of contemporary immigration and the role of race, nativity and legal status on the prospects for integration of immigrants and their children.

**Social Inequality** – The program in Social Inequality is focused on how rising economic inequality is related to social, political, and economic institutions in the U.S., and the extent to which increased inequality has affected equality of opportunity, social mobility, and the intergenerational transmission of advantage.

# Russell Sage Foundation

---

Project Awards typically range between \$35,000 and \$150,000. **We provide support primarily for analyzing data and writing up results**, but we occasionally consider larger awards for projects that are highly relevant to the Foundation's program goals.

# Robert Wood Johnson Foundation

---

The Robert Wood Johnson Foundation provides grants for projects in the United States and U.S. territories that advance our mission to improve the health and health care of all Americans.

RWJF awards most grants through [calls for proposals](#) (CFPs) connected with our areas of focus. We accept [unsolicited proposals](#) for projects that suggest new and creative approaches to solving health and health care problems.

# RWJF Projects

---

We aim to fund innovative projects that can have measurable impact and can create meaningful, transformative change, such as:

- Service demonstrations
- Gathering and monitoring of health-related statistics
- Public education
- Training and fellowship programs
- Policy analysis
- Health services research
- Technical assistance
- Communications activities
- Evaluations

# Current RWJF RFPs

---

## Public Health Services and Systems Research

PHSSR is a multidisciplinary field that seeks to identify how best to organize, finance and deliver public health strategies that can improve health on a population-wide basis.

Deadline: Open

## Changes in Health Care Financing and Organization: Small Grants

Small grants: HCFO supports research, policy analysis and evaluation projects that provide policy leaders timely information on health care policy, financing and organization issues.

Deadline: Open

## Changes in Health Care Financing and Organization

HCFO supports research, policy analysis and evaluation projects that provide policy leaders timely information on health care policy, financing and organization issues.

# Kaiser Priority

---

## Community Health Initiatives

- Focused on transforming communities into environments that promote healthy eating and active living, these initiatives support individuals, particularly those who are low income and underserved, in making healthy lifestyle choices and preventing disease.
- Areas of focus include: policy and environmental change advocacy, food security, smart growth/land use, multi-sector coalitions, parks and recreation, school wellness, worksite wellness, health promotion and prevention programs.

# Kaiser Priority

---

## Safety Net Partnerships

- These partnerships are dedicated to increasing the capacity of community partners to provide access to coordinated, quality care that improves patient and population health. Areas of focus include: access to primary care, preventative and clinical services, chronic disease management, quality improvement, access to specialty care, mental health and oral health services, homeless health care, HIV/AIDS, capacity building and core operating support.

# Kaiser Priority

---

## **Develop and Disseminate Knowledge**

- These efforts strive to educate current and future health care professionals and inform policy makers on pressing community health needs and issues. Areas of focus include: training programs, workforce diversity and pipeline programs, workforce training programs, public policy development and advocacy, health awareness, social justice, and civic engagement.

# Reading RFPs

---

- *CAREER*: The Faculty Early Career Development (CAREER) Program is a Foundation-wide activity that offers the National Science Foundation's most prestigious awards in support of **junior faculty** who exemplify the role of **teacher-scholars** through outstanding research, excellent education and the **integration of education and research** within the context of the mission of their organizations. Such activities should build a firm foundation for a lifetime of leadership in integrating education and research.
- NSF encourages submission of CAREER proposals from junior faculty members at all CAREER-eligible organizations and especially encourages women, members of underrepresented minority groups, and persons with disabilities to apply.

# NSF CAREER

---

**Faculty Early Career Development (CAREER) Program** Includes the description of NSF 's Presidential Early Career Awards for Scientists and Engineers (PECASE)

**PROGRAM SOLICITATION**

NSF 14-532

**REPLACES DOCUMENT(S):**

NSF 11-690



**National Science Foundation**

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

Directorate for Social, Behavioral & Economic Sciences

Office of International and Integrative Activities

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

July 21, 2014

BIO, CISE, EHR

July 22, 2014

ENG

July 23, 2014

GEO, MPS, SBE

# Contacts and Basics

---

## **Cognizant Program Officer(s):**

Division CAREER contacts listed on the CAREER web page at:

<http://www.nsf.gov/crssprgm/career/contacts.jsp>

See Contacts listing, NSF, telephone: (703) 292-5111, email: [info@nsf.gov](mailto:info@nsf.gov)

## **Award Information**

- **Anticipated Type of Award:** Standard Grant or Continuing Grant
- **Estimated Number of Awards:** 600 per year
- **Anticipated Funding Amount:** \$220,000,000 per year to new and continuing CAREER awards. This amount is approximate, includes new and continuing increments, and is subject to availability of funds.

# Contacts and Basics (cont.)

---

**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

**47.079** --- International and Integrative Activities (IIA)

**47.081** --- Office of Experimental Program to Stimulate Competitive Research

# Intellectual Merit & Broader Impacts

---

**Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to **advance knowledge**;

**Broader Impacts:** The Broader Impacts criterion encompasses the potential to **benefit society** and contribute to the achievement of specific, desired societal outcomes.

- Such outcomes include, but are not limited to: **full participation** of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (**STEM**); improved STEM **education and educator development** at any level; increased **public scientific literacy** and public engagement with science and technology; **improved well-being of individuals in society**; development of a **diverse, globally competitive STEM workforce**; increased **partnerships** between academia, industry, and others; **improved national security**; increased **economic competitiveness** of the United States; and enhanced **infrastructure for research and education**.
- To what extent do the proposed activities suggest and explore creative, original, or potentially **transformative concepts**?
- Is the plan for carrying out the proposed activities **well-reasoned, well-organized, and based on a sound rationale**? Does the plan incorporate a mechanism to assess success?
- How well **qualified** is the individual, team, or organization to conduct the proposed activities?
- Are there **adequate resources** available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

# Review and Selection Process

---

- Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Panel Review.
- Reviewers will be asked to evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will be completed and submitted by each reviewer. 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 strives to be able to tell applicants whether their proposals have been declined or recommended for funding within six months.
- Large or particularly complex proposals or proposals from new awardees may require additional review and processing time. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director acts upon the Program Officer's recommendation.

# Review and Selection Process (cont.)

---

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. After an administrative review has occurred, Grants and Agreements Officers perform 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.

Once an award or declination decision has been made, Principal Investigators are **provided feedback** about their proposals. In all cases, reviews are treated as **confidential documents**. Verbatim copies of reviews, excluding the names of the reviewers or any reviewer-identifying information, 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.

# Proposal Contents

---

## The Cover Sheet:

### Program Solicitation Number.

- FastLane users: Select the CAREER program solicitation number shown at the beginning of this solicitation from the drop-down menu. Grants.gov users: The program solicitation will be pre-populated by Grants.gov on the NSF Grant Application Cover Page.

### Unit of Consideration.

- Select at least one specific disciplinary program from the drop-down list in FastLane as the unit of consideration. Grants.gov users should refer to Section VI.1.2. of the NSF Grants.gov Application Guide for specific instructions on how to designate the NSF Unit of Consideration. For assistance in determining which program(s) to choose, refer to the NSF [Guide to Programs](#), which provides descriptions of NSF's research-supporting programs. The applicable deadline for the proposal is the deadline of the Directorate/Office that contains the lead disciplinary program chosen in the cover page.

### Project Title.

- The project title must begin with "CAREER:" and follow with an informative title.

### Co-PIs.

- No co-PIs are permitted.

### PI eligibility information.

- The Departmental Letter, to be included as a supplementary document in the proposal, should state that the PI is eligible to participate in this program.

# Project Summary & Description

---

## Project Summary:

- The Project Summary consists of an overview, a statement about the intellectual merit of the proposed activity, and a statement about the broader impacts of the proposed activity. Proposals that do not contain an overview and separate statements on intellectual merit and broader impacts will not be accepted by FastLane or will be returned without review.

## Project Description:

- The Project Description section should contain a well-argued and specific proposal for activities that will, over a 5-year period, build a firm foundation for a lifetime of contributions to research and education in the context of the PI's organization. The Project Description may not exceed 15 pages.

# Project Summary & Description

---

The Project Description should be developed in consultation with the department head or equivalent organizational official and should include:

- a description of the proposed research project, including preliminary supporting data where appropriate, specific objectives, methods and procedures to be used, and expected significance of the results;
- a description of the proposed educational activities, including plans to evaluate their impact on students and other participants;
- a description of how the research and educational activities are integrated with one another; and
- results of prior NSF support, if applicable.

Successful applicants will propose creative, effective, integrated research and education plans, and indicate how they will assess these components. While excellence in both education and research is expected, activity of an intensity that leads to an unreasonable workload is not. The research and educational activities do not need to be addressed separately if the relationship between the two is such that the presentation of the integrated project is better served by interspersing the two throughout the Project Description.

# Research Ethics

---

## Ethical Guidelines

- The goal of clinical research is to develop generalizable knowledge that improves human health or increases understanding of human biology. People who participate in clinical research make it possible to secure that knowledge.
- The path to finding out if a new drug or treatment is safe or effective, for example, is to test it on patient volunteers. But by placing some people at risk of harm for the good of others, clinical research has the potential to exploit patient volunteers. The purpose of ethical guidelines is both to protect patient volunteers and to preserve the integrity of the science.
- The ethical guidelines in place today were primarily a response to past abuses, the most notorious of which in America was an experiment in Tuskegee, Alabama, in which treatment was withheld from 400 African American men with syphilis so that scientists could study the course of the disease. Various ethical guidelines were developed in the 20th century in response to such studies.
- Some of the influential codes of ethics and regulations that guide ethical clinical research include:
  - Nuremberg Code (1947)
  - Declaration of Helsinki (2000)
  - Belmont Report (1979)
  - CIOMS (2002)
  - U.S. Common Rule (1991)

# NIH 7 Ethical Principles

---

## **Social and clinical value**

- Every research study is designed to answer a specific question. Answering certain questions will have significant value for society or for present or future patients with a particular illness. An answer to the research question should be important or valuable enough to justify asking people to accept some risk or inconvenience for others. In other words, answers to the research question should contribute to scientific understanding of health or improve our ways of preventing, treating, or caring for people with a given disease. Only if society will gain useful knowledge — which requires sharing results, both negative and positive — can exposing human subjects to the risk and burden of research be justified.

## **Scientific validity**

- A study should be designed in a way that will get an understandable answer to the valuable research question. This includes considering whether the question researchers are asking is answerable, whether the research methods are valid and feasible, and whether the study is designed with a clear scientific objective and using accepted principles, methods, and reliable practices. It is also important that statistical plans be of sufficient power to definitively test the objective, for example, and for data analysis. Invalid research is unethical because it is a waste of resources and exposes people to risk for no purpose

# NIH 7 Ethical Principles

---

## Fair subject selection

- Who does the study need to include, to answer the question it is asking? The primary basis for recruiting and enrolling groups and individuals should be the scientific goals of the study — not vulnerability, privilege, or other factors unrelated to the purposes of the study. Consistent with the scientific purpose, people should be chosen in a way that minimizes risks and enhances benefits to individuals and society. Groups and individuals who accept the risks and burdens of research should be in a position to enjoy its benefits, and those who may benefit should share some of the risks and burdens. Specific groups or individuals (for example, women or children) should not be excluded from the opportunity to participate in research without a good scientific reason or a particular susceptibility to risk.

## Favorable risk-benefit ratio

- Uncertainty about the degree of risks and benefits associated with a drug, device, or procedure being tested is inherent in clinical research — otherwise there would be little point to doing the research. And by definition, there is more uncertainty about risks and benefits in early-phase research than in later research. Depending on the particulars of a study, research risks might be trivial or serious, might cause transient discomfort or long-term changes.
- Risks can be physical (death, disability, infection), psychological (depression, anxiety), economic (job loss), or social (for example, discrimination or stigma from participating in a certain trial). Has everything been done to minimize the risks and inconvenience to research subjects, to maximize the potential benefits, and to determine that the potential benefits to individuals and society are proportionate to, or outweigh, the risks? Research volunteers often receive some health services and benefits in the course of participating, yet the purpose of clinical research is not to provide health services.

# NIH 7 Ethical Principles

---

## Independent review

- To minimize potential conflicts of interest and make sure a study is ethically acceptable before it even starts, an independent review panel with no vested interest in the particular study should review the proposal and ask important questions, including: Are those conducting the trial sufficiently free of bias? Is the study doing all it can to protect research volunteers? Has the trial been ethically designed and is the risk–benefit ratio favorable? In the United States, independent evaluation of research projects is done through granting agencies, local institutional review boards (IRBs), and data and safety monitoring boards. These groups also monitor a study while it is ongoing.

## Informed consent

- For research to be ethical, most agree that individuals should make their own decision about whether they want to participate or continue participating in research. This is done through a process of informed consent in which individuals (1) are accurately informed of the purpose, methods, risks, benefits, and alternatives to the research, (2) understand this information and how it relates to their own clinical situation or interests, and (3) make a voluntary decision about whether to participate.
- There are exceptions to the need for informed consent from the individual — for example, in the case of a child, of an adult with severe Alzheimer’s, of an adult unconscious by head trauma, or of someone with limited mental capacity. Ensuring that the individual’s research participation is consistent with his or her values and interests usually entails empowering a proxy decision maker to decide about participation, usually based on what research decision the subject would have made, if doing so were possible.

# NIH 7 Ethical Principles

---

## Respect for potential and enrolled subjects

Individuals should be treated with respect from the time they are approached for possible participation—even if they refuse enrollment in a study—throughout their participation and after their participation ends. This includes:

- Respecting their privacy and keeping their private information confidential.
- Respecting their right to change their mind, to decide that the research does not match their interests, and to withdraw without penalty.
- Informing them of new information that might emerge in the course of research, which might change their assessment of the risks and benefits of participating.
- Monitoring their welfare and, if they experience adverse reactions, untoward events, or changes in clinical status, ensuring appropriate treatment and, when necessary, removal from the study.
- Informing them about what was learned from the research. Most researchers do a good job of monitoring the volunteers' welfare and making sure they are okay. They are not always so good about distributing the study results. If they don't tell you, ask