The NSF CAREER Award

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Berkeley Research Development Office
http://www.nsf.gov/career

- NSF contacts
- Funded awards
- Career-Life Balance supplements
- Supplemental research opportunities
Purpose

- To support junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research.

- To build a firm foundation for a lifetime of leadership in integrating education and research, where research is enhanced by inspired teaching and enthusiastic learning.
Purpose

- A career development award, not just a research award.
Eligibility

- Hold a doctoral degree by the deadline date in a field supported by NSF; be *untenured until October 1 following the deadline*; and have not previously received a CAREER award
  - AND
- Be employed in a tenure-track (or tenure-track-equivalent) position as an assistant professor (or equivalent title by October 1 following the submission deadline.)
Number of submissions

- You can enter 3 CAREER competitions.
- You cannot submit the same research proposal to more than one entity.
- The proposed research must be distinct from any other federally-funded research.
Deadlines

- Directorate-dependant:
  - BIO, CISE, EHR: July 21, 2015
  - ENG: July 22, 2015
  - GEO, MPS, SBE: July 23, 2015
Choosing a Program to Submit To

- You choose the program you wish to review/fund your proposal on your proposal’s cover page.
- Multidisciplinary proposals can list multiple divisions on the cover page.
Directorate of Biological Sciences (BIO)

Divisions of:

- Biological Infrastructure (DBI)
- Environmental Biology (DEB)
- Integrative Organismal Systems (IOS)
- Molecular and Cellular Biosciences (MCB)
- Emerging Frontiers (EF)
Clusters

- MCB
  - Cellular Dynamics and Function
  - Genetic Mechanisms
  - Molecular Biophysics
  - Systems and Synthetic Biology
See What’s Been Funded: Advanced Search

Awardee Information

- Principal Investigator First Name
- Principal Investigator Last Name
- Organization
- State
- Zip Code
- Country

HINT: Including the Co-Principal Investigator will result in slower searches.

- Include Co-Principal Investigator

Program Information

- NSF Organization: Select one
- Element Code
- Reference Code: 1045
- Program
- Program Officer

HINT: The "Program" box searches both program element and program reference names and codes.

Additional Information

- Keyword
- Search Award Title Only
- Award Number: Select one
- Original Award Date: Select one
- Start Date: Select one

HINT: Data prior to 1976 may be less complete.

- Active Awards: Check
- Expired Awards: Uncheck
- From
- To
- From
- To
Funding

- Directorate-dependant:
  - BIO, ENG, and PLR: minimum $500,000 total for 5 years
  - Others: minimum $400,000 total for 5 years
    - Total costs = direct + indirect costs
- Look at what’s been funded to see what normal level is for your area.
- Talk to your program officer to see what levels they are funding at.
Funding

- Can fund:
  - Yourself
  - Postdocs
  - Grad students
  - Travel
  - Supplies, etc.

- Can’t fund:
  - Senior personnel (other faculty or senior staff)
Supplemental Funding

- Career-Life Balance (if on family leave for childbirth/adoption or elder care)
- Research Opportunities in Europe (collaboration with ERC-funded researchers)
- Research Opportunities in Germany (collaboration with DFG-funded researchers)
Writing the Proposal

- Follow the instructions in the RFA
- Follow the instructions in the NSF Grant Proposal Guide (GPG)
Proposal Components

- Project summary (1 page)
- Project description (15 pages)
- Biosketch (2 pages, using NSF format)
- Departmental letter (2 pages)
- Letters of collaboration (if applicable, 1 page each)
- Postdoc mentoring plan (if applicable, 1 page)
- Data management plan (2 pages)
- Facilities & Resources
- References Cited
- Budget
- Budget justification (3 pages)
Preparing to Write

- Identify a strategic plan.
- Define your research question.
- Define your needs.
- Draft the proposal.
Identify a Strategic Plan

- What are your strategic, long-term career goals?
- What steps do you need to take to get there?
- How would this award help you achieve those goals?
Define Your Research Question

- Identify a gap in knowledge in your field.
- Identify a problem whose solution will be a big step forward for the field, rather than an incremental step.
- Discern whether or not someone else has already asked your question.
- Choose a problem that is going to matter to more people than just you.
Define Your Research Question

- Place your research question in the context of your larger research plan for your career.
- Which portion of your long-term career goals will be addressed with this grant?
Define Your Need

- What do I need in order to do my research that I don’t already have?
- How much do I need?
- Who do I need to help me?
Draft the Proposal

Understand your audience:

- Assume you are not writing for an expert.
- Target your proposal at 3 levels:
  - Someone who doesn’t know your field.
  - Someone familiar with, yet not expert in your field.
  - Someone expert in your field.
Draft the Proposal

More detailed instructions available in the “NSF CAREER Award Writing Guide.”
Project Summary

Three Sections:

- **Overview section:**
  - Research and education objectives.
  - Plans for the integration of education and research activities.

- Separate sections on how the proposal meets both the **Intellectual Merit** and **Broader Impact** review criteria.

- 4700 characters, in three separate boxes (can upload PDF if using special characters).
Project Description, per NSF:

- The proposed research project, including preliminary supporting data where appropriate, specific objectives, methods and procedures to be used, and expected significance of the results;
- The proposed educational activities, including plans to evaluate their impact on students and other participants;
- How the research and educational activities are integrated with one another; and
- Results of prior NSF support, if PI or co-PI on any grant in last 5 years.
Project Description

- Include:
  - Objectives/Specific aims
  - Research Plan
  - Education Plan
  - Broader Impacts
  - Results from Prior NSF Support (or say “Not applicable”)
Project Description

- For the Research Plan, include:
  - Background and Significance
  - Preliminary Data
  - Methods
  - Potential pitfalls and alternative approaches
  - Evaluation
  - Timeline
  - Future steps
Project Description

- Presentation is important!
  - Proper English
  - Correct grammar
  - Attractive formatting
  - Effective figures and tables (don’t forget the titles and captions)
NSF Peer Review Criteria

What is the intellectual merit of the proposed activity?

What are the broader impacts of the proposed activity?
Peer Review Criteria

**Intellectual Merit:**
The potential to advance knowledge

**Broader Impacts:**
The potential to benefit society and contribute to the achievement of specific, desired societal outcomes
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?
NSF Staff Review Criteria

- Integration of research and education.
- Integrating diversity into NSF programs, projects, and activities.
The NSF CAREER Award: Broader Impacts & Education Plan

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Berkeley Research Development Office
Broader Impacts & Education Plan

- Updates and changes regarding NSF Broader Impacts review criteria and expectations.
- Common areas of confusion & recommendations.
- Steps/elements for creating a successful education plan.
- Resources to help with your education plan.
Broader Impacts:
Potential to benefit society and contribute to desired societal outcomes.

A wide net

- Improved well-being of individuals in society (i.e., workforce development, economic development, environmental remediation, health/safety enhancements...)
- Education and training at any level.
- Enhancing scientific literacy.
- Engagement of groups underrepresented in STEM.
- Improved research & education infrastructure.
GPG Revision (effective Jan 2013)
Raised prominence of Broader Impacts

All 5 review elements apply to Intellectual Merit and Broader Impacts.
Proposals must address Broader Impacts in a separate section of the Project Description.

Results from prior support must address both Intellectual Merit and Broader Impacts.

Annual reports/final reports must include progress/accomplishments of Intellectual Merit and Broader Impacts activities in separate sections.
Innovation: NSF funds only projects that “push the envelope,” are transformative, catalyze change.

Flexibility: Expectations vary within disciplines and organizations.

Inclusivity: Make it possible for any researcher to leverage his or her research in an educational context; ensure the researcher’s goals are in line with the organization’s goals.
Frequently asked questions...

- How much weight does NSF give to BI (vs. Intellectual Merit) in the review process?
- What number and scope of education activities is reasonable?
- How important are the concepts of creativity and originality in education plans?
- What level of effort & financial commitment is expected?
Getting started...
Identify the “right” focus area—(internal audit)

- What are your strengths, what are you passionate about, what have you done in the past?
- What does your research lend itself to?
- What unique resources, partnerships, assets do you have access to?
- What are you realistically able to accomplish given available time/resources?
Reality check (external audit)

- Who is your audience?
- What do they already know? What do they need to know?
- What already exists? What is missing?
- Who are your potential partners and collaborators?
- Align with NSF mandates for workforce development and broadening participation.
Project Description, per NSF

- Research and education plans may be addressed *either separately or together*.
- Include a discussion of how your *research and educational activities are integrated*.
- *Broader Impacts must be discussed in a separate section* of the Project Description.
Developing your plan

- **Goals** - Must have clear rationale, be integrated with research, realistic, measurable, and aligned with NSF priorities.

- **Methods** - Include timeline and milestones. Consider a multi-year approach.

- **Resources** – Include budget, personnel, collaborations/partnerships. Use your lab!

- **Evaluation** – Use best practices, keep good records, keep it simple. Consider creating an Advisory Board.
Partnerships and collaborations

NSF: Proposers are encouraged to collaborate with or seek out and utilize resources in academia and from other sectors (i.e. industry, museums, schools, community orgs, etc).

Benefits of partnering
- Lend credibility to your proposal
- Add expertise to your team
- Leverage resources
- Magnify results/impact
- Build in sustainability
- Make the process more enjoyable
Beyond the award – supplements

- **REU** – Research Experiences for Undergraduates, $6k/student/year. Up to 2 students; more if URM.
- **RET** – Research Experiences for Teachers, up to $10k/teacher/year (stipend/supplies). 1-2 teachers per year, ENG and CISE only.

- Contact your program director first.
- Apply at beginning of fiscal year (October).
- All progress reports must be up to date!
Recap

- Integrate education with research.
- Focus on a big idea—a novel project that addresses a specific need. Take a multi-year approach.
- Quality matters more than quantity.
- Cultivate partners and collaborators.
- Involve your whole lab.
- Set up an Advisory Board.
- Engage underrepresented communities/groups.
Thank you!

Berkeley Research Development Office

Overview

The Berkeley Research Development Office (BRDO) provides a range of free proposal-related services aimed at increasing research funding on campus while decreasing faculty burden in applying for it. BRDO works with faculty to identify funding opportunities, facilitate team-building, support effective proposal development, and provide proposal-related training and resources.

Our services are free and available to all UC Berkeley faculty.

visit us at
brdo.berkeley.edu