NSF CAREER Program: A gateway to get faculty hooked on BI

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Introductions

- Who’s in today’s session?
- From what institutions?
- Describe your institution
  - Size (small, med, large)
  - Public vs. private
- MSI?
  - Where your office resides within institution
- One thing you want to learn today
Agenda

- Part I
  - CAREER basics
  - How CAREER differs from other awards
  - How to best to support faculty in planning/writing their CAREER proposals
  - Dispelling common CAREER myths and areas of confusion
Agenda

• Part II
  • Why implement a CAREER training program?
  • Models for programs across the spectrum

• Part III
  • Group discussion about developing a program that fits your institution
  • NABI support for CAREER training
Part I: CAREER what & why

CAREER is NSF’s most prestigious (and competitive) award for junior faculty.

Purpose

- Support junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research.
- Build a firm foundation for a lifetime of leadership in integrating education and research, where research is enhanced by inspired teaching and enthusiastic learning.
CAREER is different

- A career development award, not just a research award.
- Faculty must be non-tenured as of Oct 1\textsuperscript{st} following July submission.
- Education plan is required.
- Research and education must be integrated and/or synergistic.
CAREER proposal is different, too

- PI should be front and center. Use first-person (e.g., “I, me, my research group, we”).

- Refer to experiences that have informed PI’s approach to teaching, learning, and mentoring.

- Avoid provisional tone; be definite (e.g., “I will..., I’m equipped to..., I intend to...”).

- Structure of education plan is similar to that of the research plan. Apply same rigor to it.
What do faculty need help with?

1. Timing, planning, steps
2. Navigating NSF, understanding NSF’s expectations
3. Navigating campus, accessing resources, identifying appropriate partnerships
4. Proposal development
I Timing/planning

- **Timing**: When is a PI ready to submit? Can apply up to 3 times. Considerations: familiarity with campus, tenure schedule, personal goals, professional/personal commitments.

- **Steps**: Break down/itemize steps and tasks that must be accomplished to develop a competitive proposal.

- **Timeline**: What is a realistic proposal timeline?
Planning Steps

**Strategy/planning:**
Identify training/knowledge gap/problem, develop a plan to address it.

**Resources:**
Secure necessary resources, partners, collaborators.

**NSF feedback:**
Identify correct “home” in NSF. Write 1 pg summary. Consult with NSF program officer.

**Proposal development:**
Outline, draft proposal. Get feedback from specialists & non-specialists. Revise/refine.
2 Navigating NSF

- NSF structure/organization
- Expectations, review processes within different directorates and divisions
- Interaction with NSF program officer
- NSF priorities, particularly in broadening participation and workforce development
- Body of literature on best practices in pedagogy, mentoring, broadening participation
**NSF’s Advanced Search Tool**

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**Code for CAREER: 1045**

Understand NSF’s review criteria and processes

While **review criteria** are standard....

- Potential to advance knowledge and benefit society
- Original, potentially transformative
- Sound rationale & mechanism to assess success
- Well-qualified proposer
- Adequate resources

Review **processes**, Reviewer **selection**, and review **expectations** are not!

**Intellectual Merit & Broader Impacts**
Consult an NSF program officer

Recommend that all CAREER proposers contact a program officer to get feedback on their proposed research/education plans.

- Target the “right” program officer
- Prepare one-page summary
- Email PO, request meeting (phone/in-person)
- Prepare questions in advance
- Take notes during the meeting
- Follow up, check in judiciously
3 Navigating campus

- Overview of campus BI infrastructure, resources
- Examples of successful education partnerships
- Potential partners (on and off campus), contacts, introductions
- Evaluation mechanisms & resources that are simple to implement and inexpensive
4 Proposal development

- Framing/scope for education activities match expectations of the directorate/division
- Integration of research & education
- Evaluation plan & timeline are included
- Budgeting for education activities is realistic
- Separate BI section is included in project description
- Supporting docs highlight BI expertise, involvement, effort
Supporting documents are not filler!

- **Departmental letter**—Must show strong departmental commitment to both research and education components. *A good letter is critical!*

- **Biographical sketch**—Use **Synergistic Activities** (section d) to document teaching, training, service accomplishments.

- **Budget, budget justification** must be consistent with nature and scope of proposed activities.

- **Letter of Collaboration** from partner/collaborator (Careful! *LOC may not endorse PI or project*).
Common (and vexing) questions

- What **weight** does the NSF assign to the **merit review criteria** – Intellectual Merit and Broader Impacts?

- What **number and scope** of educational **activities** is expected?

- How important is **originality versus the tried-and-true**?

- What level of **effort and financial commitment** does the NSF expect for the education activities?
Part II Agenda

- Why implement a CAREER training program?
- Most common mistakes/pitfalls
- Models for programs across the spectrum
Why implement a CAREER training program?

- Benefits young PIs & preps them for future
  - Helps develop their awareness, expertise & confidence
  - Stimulates ideas for engaging their grad students & post-docs
  - One of NSF’s most prestigious awards
- Improves likelihood of effective BI programming
- Helps bring in $$funding$$ for PI and institution
Why implement a CAREER training program?

- Raises awareness of your office and the resources it provides
- A good way to encourage PIs to participate in programs or activities your office/ institution sponsors
- CAREER Program is very competitive (17% success rate)
- As BI Professional, you will learn a lot!
Why implement a CAREER training program?

- Helps PIs avoid the most common mistakes*
  - Education component is generic and what is expected of all PIs
  - Unrealistic education activity
  - Reinventing the wheel
  - Research and education plans are not aligned or integrated
  - Lack of understanding of what is effective in education
  - Not highlighting BI that goes beyond education

*according to NSF
The CAREER training continuum

Emerging
- Arizona State
- Brown
- UC Berkeley
- U of Iowa
- U Missouri
- Northwestern

Moderate
- Oregon State
- U Pennsylvania
- Rutgers
- Stanford
- U Tennessee
- U Wisconsin

Intensive
The CAREER training continuum

Emerging

Features:
- Typically small office (1 FTE)
- Offer resources on website
- 1 on 1 help as requested
- Perhaps intro training session

Examples:
- Oregon State undertook multi-year effort to launch a Research Impacts Network
- U. Tennessee offers website with resources developed at other institutions
- U. Texas Dallas website links to resources from NABI Summits
The CAREER training continuum

Moderate

Features:
- Multiple training sessions
- Assistance with literature review
- Provide some boilerplate
- Share previous successful proposals
- Review/editing pre-submission
- Recommend evaluation expert/resources
- Track results

Examples:
- U Arizona offers extensive website, a number of workshops & CAREER recipient panel
- Stanford offers resources to help PIs with outreach logistics & menu of ideas
The CAREER training continuum

Features:
- Formal MOU
- Multiple training sessions over many months
- Peer review process
- Formal review pre-submission
- Help with evaluation plan
- Make suggestions based on reviewers’ comments for failed proposals
- NSF Mock Review Panel

Examples:
- Brown had 100% success rate of funding for PIs who attend training & Mock Review Panel
- Northwestern also helps implement & evaluate (staff of 10+ FTE)
- U Missouri requires PIs to sign MOU & provides step-by-step timeline and worksheet
- Arizona State arranges visits to NSF Program Officers
Number of CAREER proposals by NSF Directorate

Graph showing the number of CAREER proposals by NSF Directorate for different years (2010 to 2016) for CSE, GEO, ENG, BIO, EHR, MPS, and SBE.
CAREER funding rate by Directorate

Average = 12-14%
Part III Group Discussion

- Developing a CAREER training program that fits your institution:
  - Where are you now?
  - Where would you like to be eventually?
  - How can NABI help?

Thoughts? Questions?