Applying for an NSF CAREER Grant

April 1, 2013

Agenda

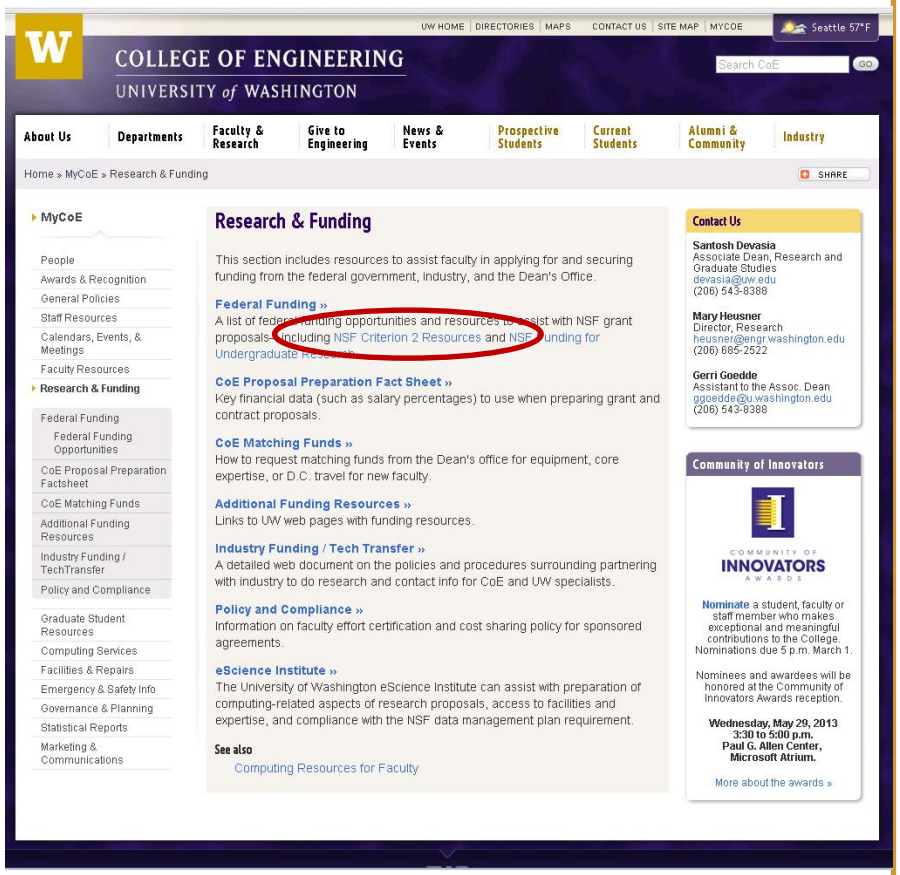
- UW Program Contacts – Broader Impacts
- Past Awardees
- Q&A

UW Program Contacts

- CoE Boilerplate – Eve Riskin
- LSAMP – Stephanie Gardner
- UW Math Academy – Angela Del Cid

CoE Criterion 2 Boilerplate

- Research & Funding: http://engr.washington.edu/mycoe/research/index.html
- Criterion 2 Boilerplates: http://www.engr.washington.edu/?q=mycoe/research/criterion2/index.html



NSF Criterion 2 Resources

NSF proposals are evaluated based on two main criteria: 1) intellectual merit and 2) **broader impacts**.

Resources in this section are intended to help CoE faculty strengthen their NSF proposals with respect this second criterion, defined by the following questions:

- 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?

NSF Resources

Dear Colleague letter on broader impacts
Examples of broader impacts activities

CoE Resources

Student Academic Services (SAS) can help you address broader impacts in your proposals.

Sample Text for Proposals

As a starting point, you may want to adapt sample text provided below. ***Please be sure to edit and personalize the text enough to be meaningful.***

To be most effective, you should contact someone in SAS to discuss your plans to collaborate with us.

Sample Text for Participation in the Engineering Bridge Program

Sample Text for Participation in Student Recruitment

Sample Text for Participation in Engineering Discovery Days

(starting spring 2010)

Sample Text for Participation in the Summer Mathematics Academy

Sample Text for Participation in Seattle MESA

Support Letter Templates

SAS is pleased to offer a letters of support for grant applications that propose to partner with us on broader impacts goals. To expedite your support letter, please customize one of the templates below and send it to Associate Dean Eve Riskin (riskin@u.washington.edu) for final edits.

General support letter
Support letter for proposals that emphasize partnerships with WiSE

Additional Resources

Outreach Partnerships with Pacific Science Center

Contact Us

Specific contact information follows each block of sample text under CoE Resources at left.

See also:

Student Academic Services staff directory »

Community of Innovators

COMMUNITY OF INNOVATORS AWARDS

Nominate a student, faculty or staff member who makes exceptional and meaningful contributions to the College. Nominations due 5 p.m. March 1.

Nominees and awardees will be honored at the Community of Innovators Awards reception.

Wednesday, May 29, 2013
3:30 to 5:00 p.m.
Paul G. Allen Center, Microsoft Atrium.

More about the awards »

Two Broader Impact Programs

- LSAMP
- Math Academy

PAST AWARDEES AND REVIEWERS

- Kate Huntington, ESS
- Luke Zettlemoyer, CSE
- Cecilia Bitz, Atmospheric Sciences

Applying for a NSF CAREER Grant

Kate Huntington

Dept. of Earth & Space Sciences

University of Washington


field area in NE Indian Himalaya

- Applied my first summer at UW, successful first try, have reviewed good and bad
- Strategies: Same vs. Different from regular NSF
- Watch out, you just might get what you ask for!
  (lots of positives, but beware “safe” science & lack of “credit” for BI)

NSF CAREER Grant: Groundwork

1. Applied when I felt I could write a strong proposal
   (5-year vision, pilot data, BI linked to science)

2. Broader Impacts: something I want to do, feasible
   - Linked to my current research & teaching
   - Piggy-backed existing projects and infrastructure
   - Lots of support letters, budget for it (feasible, accountable)
   - Get experience so can brag shamelessly about your track record

3. Contacted Program Officer before submission
   (told me I had to make BI spectacular to have a prayer, so I wrote it with citations just like the science part)

4. LOTS of time deciding if I could do BI (got feedback)

NSF CAREER Grant vs. Regular NSF

SAME

1. Important, novel, interesting science
2. Clarity, get to the point soon, visuals, organization
3. Look at successful examples, get feedback from colleagues

DIFFERENT (what worked for me)

1. More space to BI, not just "tacked on" at end
2. Research and BI plans integrated, parallel structure, e.g.:
   - After intro etc., summarize research & education plan, then have parallel sections with "Details of research plan" and "Details of education plan"
   - Include "Work plan: education and research integration timeline" section
3. Emphasize my track record and vision in separate sections
   - "Summary of past research and career goals" (vision)
   - "Summary of past outreach, ed, mentoring experience" (authenticity)
   - "Relationship of proposed work to PI, dept. and institutional goals"

NSF CAREER Grant: Broader Impacts Tips

1. Play to your strengths AND existing opportunities (e.g. teaching, outreach, stakeholders, etc).

2. Graduate students are great facilitators of broader impacts. Having them perform outreach is a win-win situation (you get help, they get trained).

3. Burke Museum will partner for exhibitions / education. They are good at this (dino days, meet the mammals, etc).

4. UWHS – University of Washington in the High School; brings college curricula to local high schools.

5. Office of Educational Assessment: Partner for surveys (especially if targeting grads / undergrads)

Kate Huntington
kate1@uw.edu

Some Biased NSF CAREER Proposal Writing Advice

Luke Zettlemoyer
Assistant Professor
Computer Science & Engineering

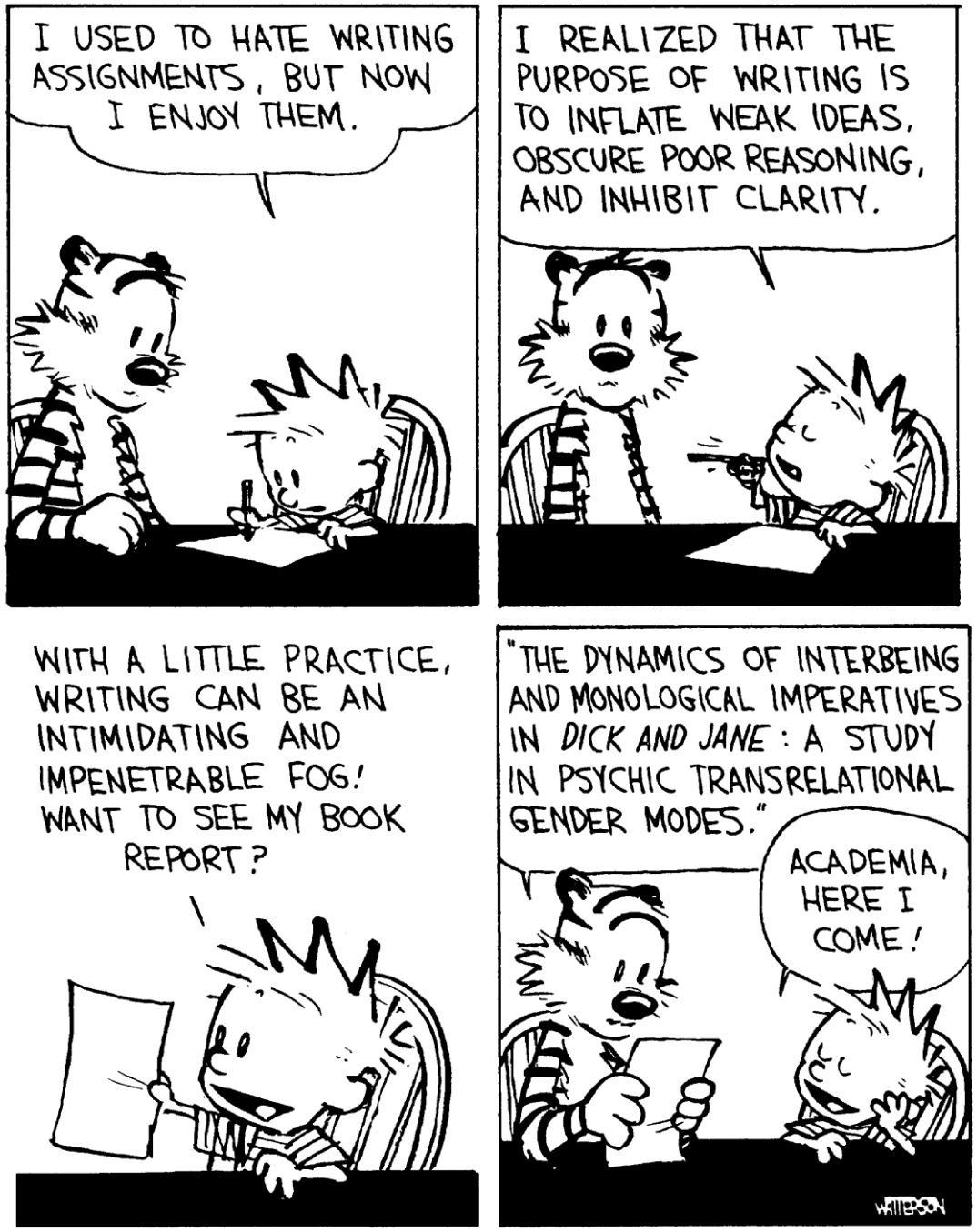
My Timeline

- Submitted small proposal in Fall of first year
  - Was a bit last minute…
  - Funded for two years instead of three
- Talked to PM (she is amazing!)
  - Would need to clearly distinguish the work
  - Recommended I wait to apply for CAREER
- Served on regular NSF review panel
- Applied for CAREER after second year
  - Timed to start as previous grant ended
  - Got it on the first try

Preparing for Writing




- Ask friends to share their proposals
  - Especially if they won recently
  - All abstracts are searchable online!
- Have a solid technical plan
  - Unlike normal grants, OK to be a bit overly ambitious
- Teaching / broader impacts very important
  - Must be a cohesive story
  - Try to build on existing resources
- Talk to PM about timing, volunteer to serve on review panel


I USED TO HATE WRITING ASSIGNMENTS, BUT NOW I ENJOY THEM.
I REALIZED THAT THE PURPOSE OF WRITING IS TO INFLATE WEAK IDEAS, OBSCURE POOR REASONING, AND INHIBIT CLARITY.
WITH A LITTLE PRACTICE, WRITING CAN BE AN INTIMIDATING AND IMPENETRABLE FOG! WANT TO SEE MY BOOK REPORT?
"THE DYNAMICS OF INTERBEING AND MONOLOGICAL IMPERATIVES IN *DICK AND JANE*: A STUDY IN PSYCHIC TRANSRELATIONAL GENDER MODES."
ACADEMIA, HERE I COME!
WATTERSON

Writing

- Reviewers are busy, and not all experts
  - Need something exciting to pull them in!
  - Main ideas presented immediately, and repeatedly
  - Make document skim-able, with multiple entry points to the real content
  - Formatting matters: use bullets, bold font, etc.
  - Make it easy to write the review
- Highlight and build on your accomplishments
  - For research, teaching, outreach, and broader impact
- Present a plausible plan
  - Even though it is unlikely one student could do it all

A little more about My Proposal

Very few reviewers have all the required expertise…

- Added background info, assumed they would skip
- Built on technical strengths, but clearly different
  - Scalability: known limitation with existing work
  - Situated language: hopefully new and exciting
- Proposed integrated online education
  - Both for undergrad and experienced researchers
  - Built on resources the CSE department already has

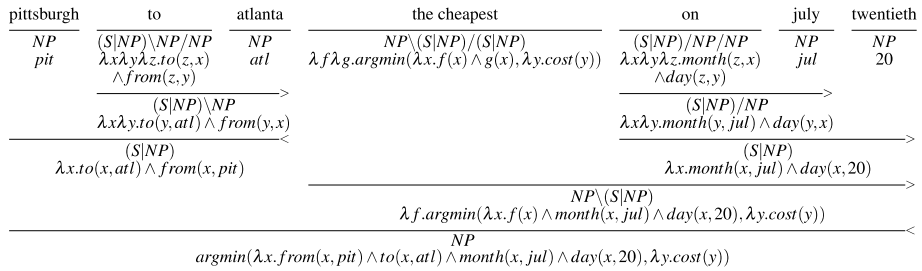


Figure 2: An example learned parse. FUBL can learn this type of analysis with novel combinations of lexemes and templates at test time, even if the individual words, like "cheapest," were never seen in similar syntactic constructions during training, as described in Section 10.

NSF CAREER Program: Views from the Review Committee

Cecilia Bitz

Associate Professor

Atmospheric Sciences

Program Goals

- Overall Program Goals
  - Support promising research
  - Reward the best researchers
  - Promote the integration of research and education
- Integration means that the educational component relates to the research. Use research to inform education and vice versa
- The degree of integration varies with program

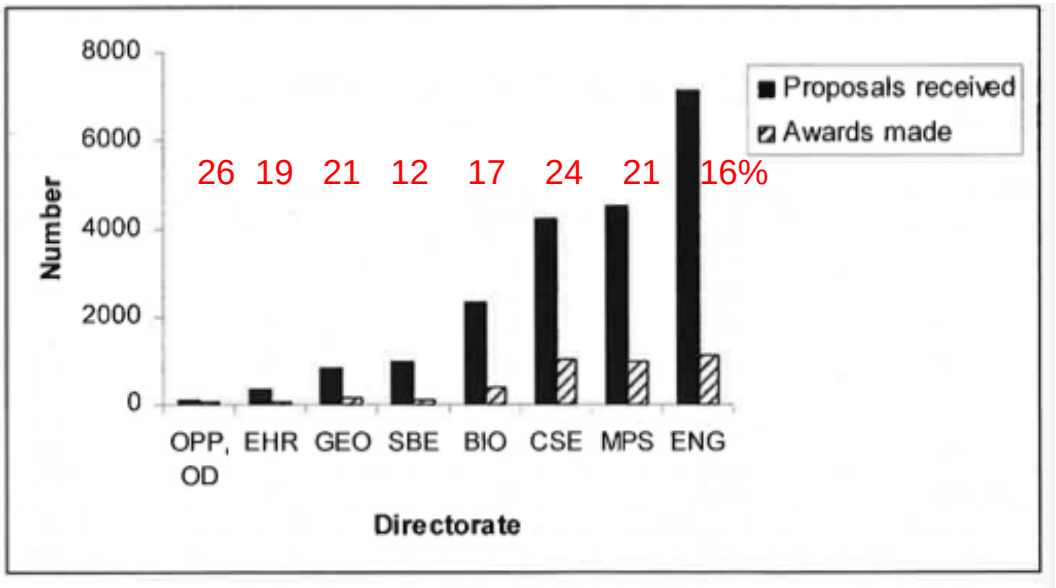
Benefits and Differences

- Benefits to CAREER awardees
  - Enable research
  - Prestige
  - Granted tenure at a higher rate
- How does work/success of CAREER differ from other NSF awardees?
  - How is time spent – no different between CAREER awardees and other NSF funded scientist:
    - 35% Research
    - 42% Instruction
  - No more likely to work or publish with undergrad, do outreach, etc
  - No more publications

Information from ABT CAREER evaluation report 2008, see executive summary at http://nsf.gov/eng/eec/EEC_Public/careerengeval.pdf

How are they reviewed?

- Those programs that receive many proposals have special CAREER program panels. These usually have education experts.
- Certain programs earmark funds for CAREER, others are opportunistic.
- Award distribution (~380 awards/yr; ~2000 proposals)
  - 30% Engineering
  - 26% CISE
  - 25% Math and Physics
  - 10% Biology
  - 4% Geoscience
  - 3% SBE
  - 2% EHR
  - <1% Polar Programs



Myths and Complaints

- Myths
  - Too many awards make you ineligible
    - 30% of awardees have other NSF grants
  - The time given to the educational component exceeds other NSF grants
    - No difference in time spent on instruction compared to other NSF grantees
- Complaints by awardees
  - Insufficient award size
  - Inappropriate emphasis on education
  - Too much to take on before tenure
  - Elitist club made colleagues jealous, unfortunate requirement for tenure in some fields

CAREER program evaluation by committee in 2012

- Educators who evaluated the program felt strongly that the education component needed to have measurable benefit. Value scaling up.
- Integration of Research and Education, discourage one-off activities
- Maintain prestige of the program/Preserve the amount of individual grant money.
- Broaden to allow industrial partnerships and international partnerships, adjust to changing face of universities (non-tenure track appointments)

QUESTIONS & ANSWERS

Additional Resources

- ADVANCE resource library – 20+ past presentations/speakers on this topic (http://advance.washington.edu/apps/resources/results.phtml?srchType=simple&srchTxt=NSF+career&matchStr=yes)
- NSF CAREER website – list of past awardees. Can search for ones here at UW
- Marketing for Scientists: How to Shine in Tough Times book