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Recent NSF CAREER Award Recipients

Jennifer Andrew, MSE, jandrew@mse.ufl.edu
Carlos Rinaldi, BME and CHE, carlos.rinaldi@bme.ufl.edu
My Thai, CISE, mythai@cise.ufl.edu
Treavor Boyer, ESSIE, thboyer@ufl.edu
David Prevatt, ESSIE, dprev@ce.ufl.edu

Tips for success
What hey did for broader impacts section
Some have shared their proposal

Other Special Speaker
Yulia A. Strekalova, Director of Grants Development
College of Journalism and Communication
Documents

• My Slides
• 2014 NSF Faculty Career Development (CAREER) Program Summary (Jenn Hubbs, Office of Research)
• Slides from a NSF Workshop at U Maryland last month
• Sample Proposals

Please add your name to sign-in sheet if you want to receive copies of these
CAREER: The Faculty Early Career Development (CAREER) Program

• NSF’s most prestigious awards in support of junior faculty
• Emphasizes outstanding research, excellent education and the integration of education and research
• A PI may submit only one CAREER proposal per annual competition.
  – may not participate in more than three CAREER competitions
  – proposals that are withdrawn before review or are returned without review do not count in three max
CAREER Program

“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.”
CAREER Program

• Funds the academic *career development* of new faculty (it is not purely a research award)

• Is based on a *development plan* that will “build a firm foundation for a lifetime of leadership in integrating research and education” – much more than a “regular” NSF proposal

• The CAREER proposal is a proposal detailing how you will spend $400,000 or $500,000 (ENG, BIO) over five years to enhance your career development
PECASE

Each year NSF selects nominees for the Presidential Early Career Awards for Scientists and Engineers (PECASE) from among the most meritorious recent NSF CAREER awardees. No application for PECASE and up to 20 are selected each year.

Selection criteria:

1) innovative research at the frontiers of science and technology that is relevant to the mission of the sponsoring organization or agency, and

2) community service demonstrated through scientific leadership, education or community outreach.
Eligibility

- Hold a doctoral degree by the deadline date in a field supported by NSF
- Be untenured until October 1 following the deadline, not an Associate Professor
- Have not previously received a CAREER award
- Be employed in a tenure-track (or tenure-track-equivalent) position as an assistant professor by October 1st following the deadline
- No citizenship requirements, except PECASE
Deadlines

• Full Proposal Deadline Date: July 21, 2014
  BIO (Biological Sciences), CISE (Computer and Information Sciences), EHR (Education and Human Resources)

• Full Proposal Deadline Date: July 22, 2014
  ENG (Engineering)

• Full Proposal Deadline Date: July 23, 2014
  GEO (Geosciences), MPS (Mathematical and Physical Sciences), SBE (Social, Behavioral and Economic Sciences)
NSF Award Criteria

• Intellectual merit
  – Advancing, if not transform, the frontiers of knowledge
  – Creativity and novelty of approach
  – Qualification of investigator
  – Well-organized, sound research plan
  – Access to adequate resources

• Broader impacts (take seriously and be innovative – equal weight with Intellectual Merit – **not an afterthought**)
  – Benefit society through research itself and..
  – Promotion of teaching and training
  – Inclusion of under-represented minorities
  – Enhancement of infrastructure and partnerships
  – Assessment and dissemination of results
Some Critical Elements

• Research *and* education/outreach – best CAREER proposals integrate both
• No co-PIs are permitted
• Project title begins with “CAREER”
• One page project summary
• 15 pages for project description
Supplementary Documentation

• Letters of collaboration, 1 page max
• No letters of recommendation for PI
• Length of departmental letter, 2 pages, must include specific elements
  – PI’s activities integrated into goals of department and UF
  – Department is committed to support of PI, mentoring of PI
  – Certifying PI is eligible
• Post-doc mentoring must be included (one page), if post-doc funding in budget
• Data management plan – dissemination and sharing of data, publications, samples, physical collections, software and models

http://research.ufl.edu/research-program-development/proposal-development-resources.html
Project Summary

Most important page

Three sections/Four Paragraphs

1. Overview
My long-term research goal is... In pursuit of this goal, the research objective of this CAREER proposal is... and the research approach is
My long-term educational goal is... In pursuit of this goal, the educational objective of this CAREER proposal is... and the educational approach is...

2. Intellectual Merit – contribution made to the knowledge base

3. Broader Impact – benefits to society
Research

- Is innovative and pushes the frontiers of knowledge (need thorough literature search)
- Builds on your strengths
- Differentiates from previous research work
- NSF does not support (except as incidental to the goals of the award)

Design of ....

Commercialization
Research

• Your career involves a research path, not just a research project

• Determine your research path – your lifelong research goals - and then identify milestones toward your goals

• *Detail the first one or two* as the research projects for your CAREER proposal

• Clearly state research objective for research project(s)
The Research Objective

• Four acceptable ways to do it right:
  - The research objective of this proposal is to test the hypothesis $H$.
  - The research objective of this proposal is to measure parameter $P$ with accuracy $A$.
  - The research objective of this proposal is to prove conjecture $C$.
  - The research objective of this proposal is to apply method $M$ from field $Q$ to solve problem $X$ in field $R$. 
The Research Objective

- Do not use words that mean “not research”
  - Develop
  - Design
  - Optimize
  - Control
  - Manage

- Use of words such as these gives the reviewers the impression that you are not doing research, there is no innovation, nothing is new, etc. - your ratings will be lower.
Broader Impacts

Means to benefit society include:

– Economic/environment/policy
– Education and training
– Providing opportunities for underrepresented groups
– Improving research and education infrastructure
Education

Undergraduate

• – Curriculum, new course or new minor
• – Research Projects (we have Center for Undergrad Research, (Dr. Anne Donnelly, adonnelly@aa.ufl.edu)

Graduate

• – Curriculum, Conferences, Involvement with industry, national labs, Public access website, Develop an app

K-12 outreach (we have Center for Precollegiate Outreach, Director, Dr. Mary Jo Koroly, korolymj@cpet.ufl.edu)

Museum exhibits (we have Florida Museum of Natural History, Dr. Bruce MacFadden, bmacfadd@flmnh.ufl.edu)

Sustainability of innovation, You do not have to promise to do all this, pick 2-3 things and do them well
CAREER Education Plan Tips

• Provide statement of philosophy towards education
• Provide concise review of pertinent literature and/or rationale for your approach – shows you are serious in the area
• Focus on innovative, highly leveraged (impact) programs – may also plug into existing programs
• Need evaluation plans -both formative (immediate) and summative (cumulative)
• Outline meaningful dissemination plan
Write to the Reviewers

Write to the reviewers – not to your PhD/post-doc advisor and not to yourself

It is a proposal, not a manuscript

Your proposal will be judged by a panel of reviewers

The review panel members will have broad expertise
CAREER PROPOSAL TIPS

Help the reviewers
Clearly answer these questions – no confusion on these points

1. What is it about (the research objective)?
2. How will you do it? (the approach)
3. Can you do it? (your qualifications and facilities)
4. Is it worth doing? (impact)
CAREER PROPOSAL TIPS

Establish your credibility in problem area and amongst your community
  – Evidence the quality of your past work
  – Walk the modest/bragging line

Clearly tell story of how you envision your career will develop

Make it clear that you have necessary resources

Use formatting – bold, underline, italics to add effect and call attention to important details.
CAREER PROPOSAL TIPS

◆ Have others review your proposal !!
  ▪ Ask someone outside your field to read Project Summary and Introduction – have a first completed draft ready three to four weeks before deadline
  ▪ If you are finishing proposal one hour before deadline, likely not to fair well
  ▪ Mock review panel late June, early July...will send out doodle poll

◆ It is a single investigator proposal
  ▪ No dependent collaborators, ‘we’, ......

◆ Scope the work is consistent with the budget

◆ The Broader Impacts plan can be deciding component
Pitfalls

- Failure to establish significance or novelty of research
- Too much text devoted to complex details
- Goals are buried in proposal
- Too ambitious for time/money
- Inadequate skills or credibility for proposed task
- Lack of knowledge of state-of-the-art
- Poor English, grammar, sloppiness
- Use of small fonts (strongly encourage 12 point font) and illegible materials/graphics, aggravates reviewers

FAILURE TO ADHERE TO SUBMISSION REQUIREMENTS

follow the guidelines

if you have questions, contact one of us, contact PO
Selecting Program/Contact NSF

• Closest to your strengths

• View past awards
  http://www.nsf.gov/crssprgm/career/awards.jsp

• Contact program officer for advice
  http://www.nsf.gov/crssprgm/career/contacts.jsp
  – Do this asap, send project summary, does my research fit well with your program? (Not... is it a good topic?)
  – Review panel comments from previous unsuccessful proposal
  – Give you ideas for collaborations, other resources
Proposal Review

• ~ Review 3 to 4 months after submission
• Panel review
• Reviews obtained from non-conflicted experts—at least three required, more typical
• ~ 6 months decision is finalized; you hear back
Be a Reviewer

Proposal review is an important service to your community
There’s no better way to see how the system works
There’s no better way to understand what makes a winning proposal
If you think the system is unfair, try being part of it
How to Volunteer

Contact your program director

E-mail a brief (1-page) bio to your program director

Be sure to include your contact information

Indicate your areas of expertise

This will get you an expense-paid trip to visit your program director
Beyond the Award

Beyond the award there are supplements

– REU (Research Experience for Undergraduates): $6,000 per year per student, nominally one student per award (two, provided one is from an underrepresented group), does NOT include equipment

– RET (Research Experience for Teachers): $10,000 to involve a K-12 teacher in your research

– Initiating international collaborations (Office of International Science and Engineering)

– Informal education (EHR)