

# Faculty Early Career Development (CAREER) Program

## Program Solicitation – NSF 14-532



Michael Mishkind, Ph.D.

[mmishkin@nsf.gov](mailto:mmishkin@nsf.gov)

Program Director, BIO/IOS

Member of the CAREER Coordinating Committee

<http://www.nsf.gov/career>

**Science The Endless Frontier: A Report to the President by Vannevar Bush, Director of the Office of Scientific Research and Development, July 1945**

*(United States Government Printing Office, Washington: 1945)*



“It has been basic United States policy that Government should foster the opening of new frontiers.”

“The Federal Government should accept new responsibilities for promoting the creation of new scientific knowledge and the development of scientific talent in our youth.”

“Basic research is a long-term process – it ceases to be basic if immediate results are expected on short-term support. Methods should therefore be found which will permit the agency to make commitments of funds from current appropriations for programs of five years duration or longer.”

<http://www.nsf.gov/about/history/nsf50/vbush1945.jsp>

# National Science Foundation

- Independent federal agency supporting research in all fields of fundamental science and engineering other than medical sciences
- Annual budget approximately \$7 billion
- Funding source for approximately 24% of all federally supported basic research conducted by U.S. colleges and universities
- In many fields such as mathematics, computer science, and the social sciences, NSF is the major source of federal backing



# National Science Foundation

- Supports research through grants and contracts
- Operates no laboratories itself
- Receives approximately 40,000 proposals per year for research, education, and training projects
- Receives several thousand applications per year for graduate and postdoctoral fellowships
- Funds approximately 11,000 proposals per year



# National Science Foundation

## Organizational Structure

- Biological Sciences (**BIO**)
- Computer & Information Science & Engineering (**CISE**)
- Education & Human Resources (**EHR**)
- Engineering (**ENG**)
- Geosciences (**GEO**)
- Mathematical & Physical Sciences (**MPS**)
- Social, Behavioral, & Economic Sciences (**SBE**)



# CAREER

“... 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.”

[www.nsf.gov/career](http://www.nsf.gov/career)



# Support for New Investigators

- All NSF programs support new investigators as part of the regular (“core”) research competitions.
- About 2/3<sup>rds</sup> of new investigators are supported by the “core” research programs.
- Faculty Early-Career Development (**CAREER**) Program
  - Most prestigious awards to help a junior faculty member develop activities that can effectively integrate research and education within the context of his/her organization.



## Goals of the CAREER Program

- Provide stable support for five years ( $\geq$  \$400K in most Directorates – ENG, BIO and GEO/PLR are  $\geq$  \$500K) to allow the career development of outstanding new teacher-scholars in the context of the mission of their organization.
- Build a foundation for a lifetime of integrated contributions to research and education.
- Provide incentives to Universities to value the integration of research and education.
- Increase participation of those traditionally underrepresented in science and engineering.





## CAREER is NSF-wide

- The program started in 1996
- All Directorates/Offices participate in the program
- Proposals are submitted to program of interest
- More than 9,000 CAREER awards have been made over the years
- NSF Presidential Early-Career Awards in Science and Engineering (PECASE) are selected out of the pool of recent CAREER awardees



## Investigator Eligibility

- Hold a doctoral degree in a field supported by NSF by proposal deadline
- Be untenured up until Oct 1<sup>st</sup> following proposal deadline
- Be employed in a tenure-track (or equivalent) position at an eligible institution as an Assistant Professor (until Oct 1<sup>st</sup> following deadline)
- Have not previously received a CAREER award
- Have not had more than two CAREER proposals reviewed
- Untenured Associate Professors are NOT eligible



## Institutional Eligibility

- Academic institutions in the U.S., its territories or possessions, and the Commonwealth of Puerto Rico that award degrees in fields supported by NSF.
- Non-profit, non-degree-granting organizations such as museums, observatories or research labs may also be eligible to submit proposals, if the eligibility requirements of the PI's position are satisfied
- NSF encourages proposals from different institutional types, including Minority Serving and Undergraduate Institutions

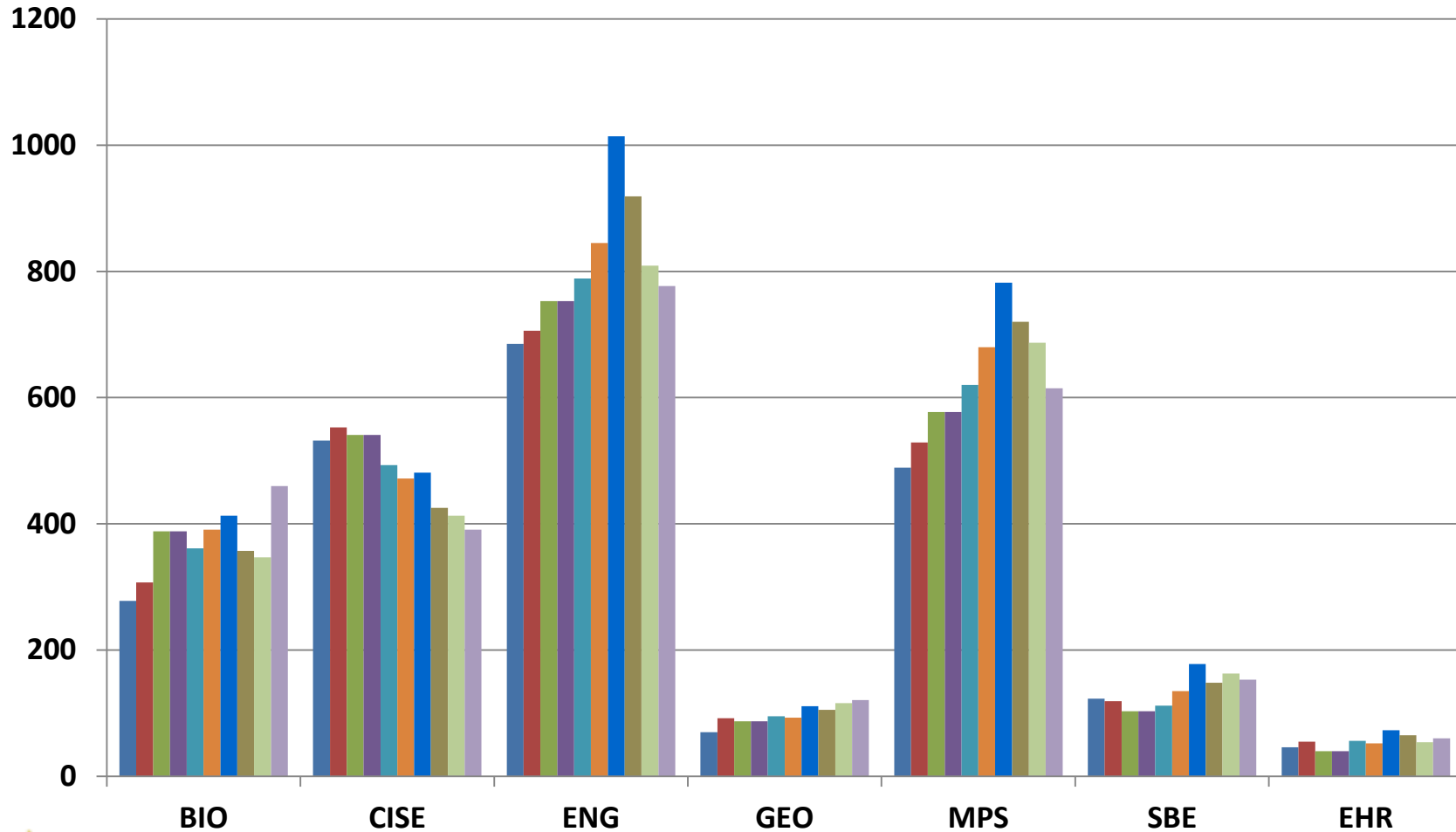
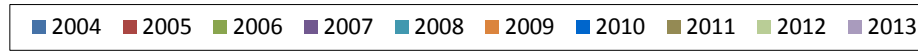


## **CAREER varies across NSF**

- Number of submitted CAREER proposals varies widely across NSF
- Review and Funding methods vary according to Directorate and Division practices
- Many CAREER proposals compete with other research proposals in the most appropriate research program
- CAREER Coordinating Committee is made up of members from the different Directorates/Offices – We are the liaison between the programs and the senior management at NSF



## Proposals Submitted



## Merit Review of CAREERs

- Ad hoc + Panel (with other proposals in the Program – most of GEO (AGS uses ad hoc only), BIO (IOS and DEB), and SBE
- Mostly dedicated CAREER Panels – ENG, CISE, EHR, BIO (MCB), MPS varies by Division:
  - AST – Panel only
  - CHE, DMR – Mix of ad hoc and panels (check your program)
  - DMS – mostly panels (2 programs use ad hoc only)

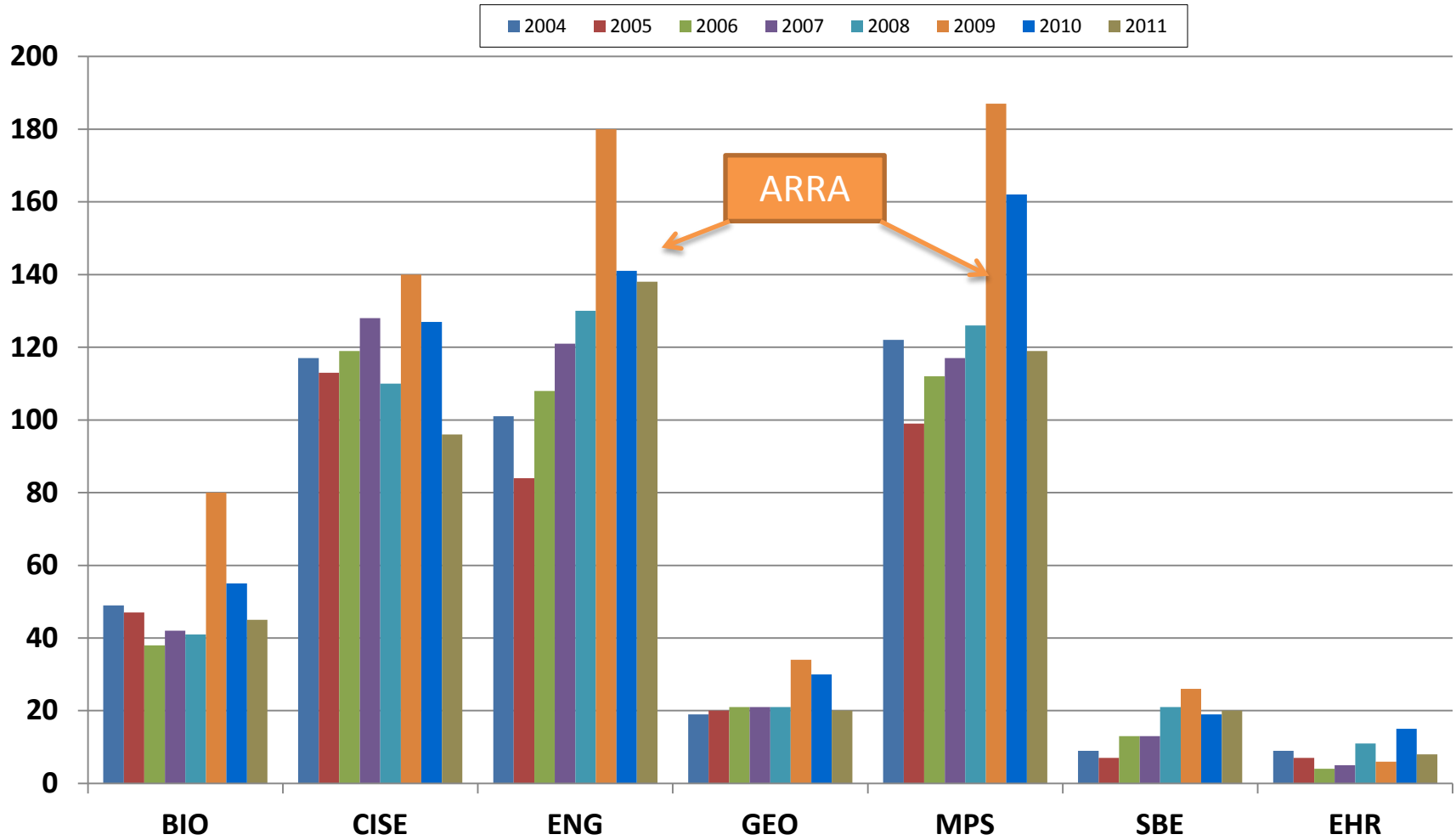


# Success Rates and Expectations

- CAREER proposals are submitted to a disciplinary unit or program
- They are reviewed according to the relevant Program guidelines - Talk to Program Officer or Division Contact for more information (<http://www.nsf.gov/crssprgm/career/contacts.jsp>)
- Make sure to check on typical award sizes in your program
- Ask about expectations for scope of research and education plans
- Assessment of Departmental Letter (2 pages) is part of the review criteria for CAREER
- Funding rates follows trend for regular proposals in the program of interest

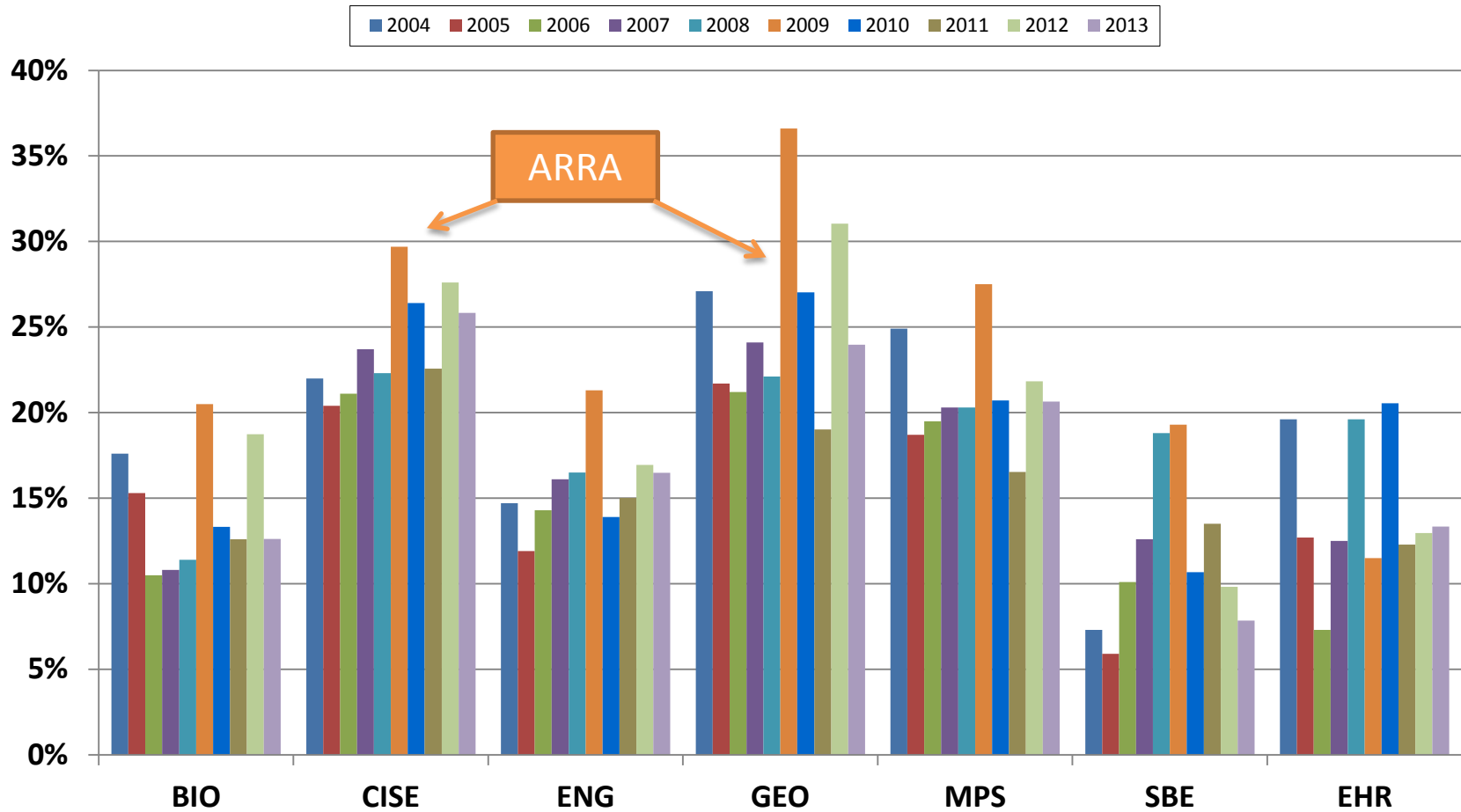


# Proposals Awarded





## Success Rate



## Is CAREER the right program for you?

- Can you think of a proposal that is appropriate for NSF with research and education activities that are innovative and ambitious?
- Is your Department/Organization supportive?
- Are you seriously committed to the goals of CAREER?
- Are you at the right stage in your career?
- Would you like to be considered for the Presidential Early Career Awards for Scientists and Engineers (PECASE), if eligible?
- Have you discussed your ideas with mentors, fellows, program officers?



# What should be in a CAREER proposal?

- A compelling research plan
- Innovative but doable education plan
- A plan for the effective integration of both sets of activities (evaluation plan is a big plus)

**Education activities** – curriculum, pedagogy, outreach, mentoring at any level, majors and non-majors, teacher preparation or enhancement, K-12 students, and/or the general public.



## CAREER Education Plan

- Activities should go beyond what is expected from any Assistant Professor in your field
- Workload should not be unreasonable
- Should be informed by what has been successful in the past - intellectual merit of the education component
- Should have a plan for assessing the success of the education program
- Check with your Program Officer or search the abstracts on the web



# Integration of Research and Education

## How will your research impact your education goals and how will your education activities feed back into your research?

- Involving others (graduate, undergraduates, K-12, high school teachers, public) in your research using new tools, laboratory methods, field components, web outreach, cyber networks, etc...
- Partnering with those in other communities, especially those traditionally underrepresented in Sciences and Engineering
- Bringing the excitement of your research topics to help in the education of others
- Searching for new methods to deliver your research results to a broader audience than those in the immediate research community
- Using the broader community to gather data for your scientific pursuits (“citizen science”)



## CAREER personnel and budgets

- No co-principal investigators or other senior personnel are allowed
- Consultants, sub-awards are allowed (but no senior personnel costs in sub-awards)
- Some programs will support buy out of academic year time for teaching intensive institutions (check with your Program Officer)
- International activities are encouraged and may be supported by the Office of International Science and Engineering (OISE)
- Some Directorates prefer making more awards but closer to the 400 K minimum (or 500K in BIO and OPP).



## Departmental Letter (2 pages)

- Support for the PIs proposed CAREER research and education activities
- Description of how the PIs career goals and responsibilities mesh with that of the organization and department
- Commitment to the professional development of the PI with mentoring and whatever is needed to forward the PIs efforts to integrate research and education
- Statement that indicates the PI is eligible for the CAREER program
- Should not serve as a letter of recommendation or endorsement of the PI or the research project



# Statement(s) of Collaboration

- Project Description must document the nature of and need for all project collaborations, such as:
  - Intellectual contributions to the project
  - Permission to access a site
  - Use of a shared instrument or facility
  - Offer to furnish samples / materials for research
  - Logistical support / evaluation services
  - Mentoring of U.S. students at a foreign site
- Single-sentence statement of collaboration:
  - **“If the proposal submitted by Dr. [name of the PI] entitled [proposal title] is selected for funding by the NSF, it is my intent to collaborate and/or commit resources as detailed in the Project Description.”**
  - Must not recommend or endorse PI or project





# CAREER Proposal Budget

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- International activities are encouraged; may be supported by NSF Office of Int'l. Sci. & Eng. (OISE)
- Division of Advanced CyberInfrastructure (ACI) may support projects to develop cyberinfrastructure
- Some Directorates prefer making awards closer to the \$400K (\$500K) minimum



# Traits of Successful CAREER proposals

- CAREER proposals should match the expectations in the disciplinary programs in terms of research and education  
- This is a highly competitive program!
- Written with peer reviewers (Ad Hoc and/or Panel) in mind - **Ask your Program Officer** who will be assessing your proposal
- Appropriate scope of education and research activities. It is a 5-year plan, not your whole life
- Goes outside the 'education box' of regular research proposals in your field
- Strikes a balance between doable research activities and more risky pursuits



# CAREER Urban Myths

- “You cannot apply because you have another award from NSF”
- “It is an entry program, so apply to CAREER first”
- “I need to see a successful proposal to write a successful proposal”
- “I read on the web that to succeed, I have to....”
- “CAREER proposals are more portable”
- “The education component does not matter”
- “You have no chance, if you are not from a research-intensive institution”



# PECASE: Presidential Early-Career Awards for Science and Engineers

- **PECASE Eligibility** - Be a US Citizen or US Permanent Resident by the time of nomination to the White House's Office of Science and Technology Policy
- 20 Nominees for NSF PECASE every year from the pool of recent CAREER awardees
- Number of nominees from each Directorate is a function of the number of proposals submitted to the programs in the Directorate



# Presidential Early-Career Awards for Scientists and Engineers (PECASE) April 2014



# The CAREER website – [www.nsf.gov/career](http://www.nsf.gov/career)

- Latest Program Solicitation - NSF 14-532
- Frequently Asked Questions - NSF 11-038
- CAREER Directorate/Division Contacts
- Link to recent awards
- Link to PECASE awards
- Deadlines for the 2015 solicitation
  - July 21, 2015 - BIO, CISE, EHR,
  - July 22, 2015 - ENG
  - July 23, 2014 - GEO, MPS, SBE

