

Faculty Early Career Development Program (CAREER)



NSF Announcement #05-579 FY 2006-2008
<http://www-personal.umich.edu/~schultz/CAREER>

1

The CAREER Award

Is neither a *necessary* nor *sufficient* condition for tenure...

Although at a top research University, it can seem like it is necessary...at least a badge of honor.

What NSF and your University hope is that it is a good jump start to your career.

Hence, since you only have three chances, the answer to the question...

2

The CAREER Award

Should I wait to “establish myself” before submitting a CAREER Proposal?

NO!!

Should I ask the PD, for a SGER or two first, to get more preliminary results?

NO!!

Get it as soon as you can so you can get that “jump start” when it is needed.

3

Proposal Title

- ◆ **Present in clear, concise, meaningful manner**
- ◆ **Avoid jargon and overstatement**
- ◆ **Be careful with buzzwords (some folks are annoyed)**
- ◆ **Avoid cute and too informal titles**
- ◆ **Reconsider titles as questions**

4

Project Summary

- ◆ **Most important section (initial impressions, particularly for panel reviews, used for reviewer selection)**
- ◆ **Contains goals and scope, brief description of method, hypotheses and expected results, *technical merit*, and *broader impacts***
- ◆ **Clear, concise, accurate, exciting**
- ◆ **Published abstracts are revised from summary**
- ◆ **Usually 1 page**
- ◆ **Conventions vary by field – seek samples**

5

Introduction and Background

- ◆ **Focus on important points and establish relevance**
- ◆ **Discuss motivation for the project**
- ◆ **Not too long**
- ◆ **Use schematics, models, headings, and formatting to channel the reader to show the direction that proposal is going**
- ◆ **Relevant literature review**
- ◆ **Preliminary results**
- ◆ **Results from prior agency support**
 - ◆ **Judging productivity**
 - ◆ **Keep concise**

6

Research Plan

- ◆ **Overview of research plan and justification**
- ◆ **Methods and materials**
 - ◆ **Sampling procedures**
 - ◆ **Experiment description**
 - ◆ **Technical procedures**
 - ◆ **Algorithm descriptions**
- ◆ **Data analysis**

7

References

- ◆ **Be unbiased – cite disputed work**
- ◆ **Cite your own work but not excessively**
- ◆ **Cite recent peer reviewed work**
- ◆ **Cite only work you have read – don't cut & paste**
- ◆ **Reviewers will look for their references**
- ◆ **Include a sufficient number of references**
- ◆ **Ensure accuracy of citations**

8

Finding an Appropriate Program

- ◆ **Check currently funded programs (fastlane)**
- ◆ **Where's your** (and former advisor's) **community?**
 - ◆ **Where do you publish?**
 - ◆ **What professional meetings do you go to?**
- ◆ **Find a fit**
 - ◆ **Contact program director**
 - ◆ **Prepare a one-page abstract**
 - ◆ **Specify appropriate program(s) on cover sheet**
- ◆ **Is submitting to more than one, double jeopardy??**
- ◆ **Consider initiatives and special programs**

9

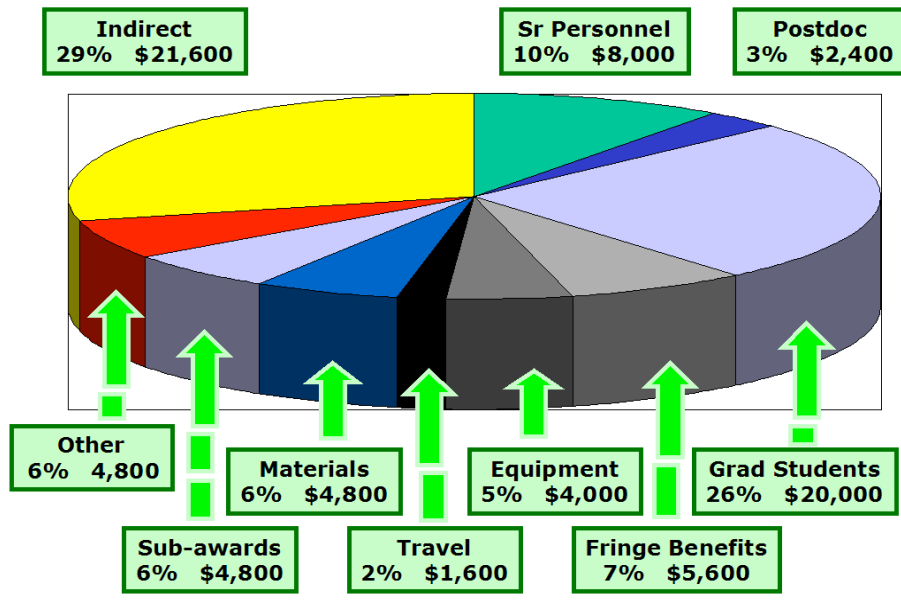
Award Criteria

- ◆ **Intellectual merit**
 - ◆ **Importance in advancing field understanding**
 - ◆ **Creativity and novelty of approach**
 - ◆ **Qualifications of investigators**
 - ◆ **Completeness of research plan**
 - ◆ **Access to resources**
- ◆ **Broader impacts**
 - ◆ **Promotion of teaching and training**
 - ◆ **Inclusion of underrepresented minorities**
 - ◆ **Enhancement of infrastructure & partnerships**
 - ◆ **Dissemination of results**
 - ◆ **Benefits to society**

10

Average CTS Annual P.I. Budget

FY 2002 (\$80,000/yr)



11

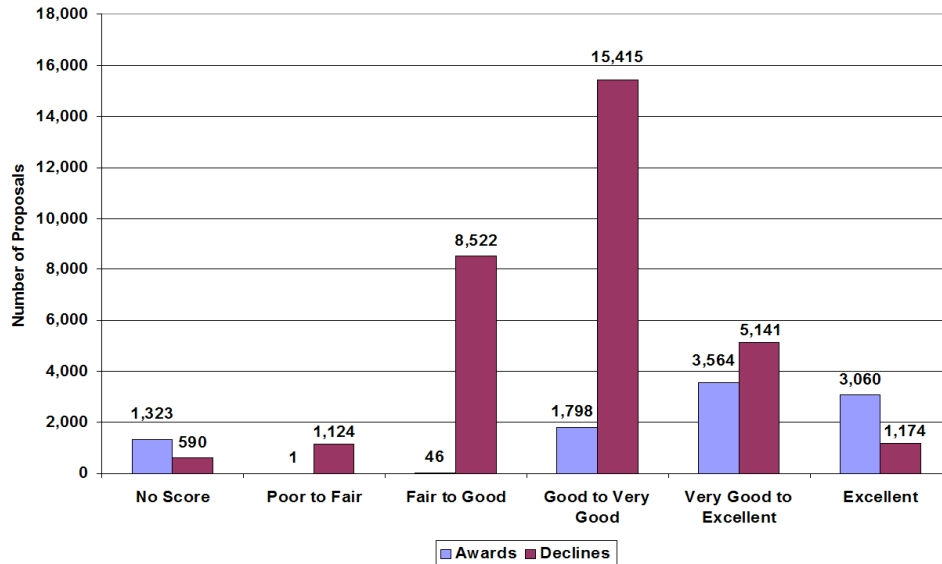
Award Statistics

- ◆ **Distribution by experience**
 - ◆ Approximately 30% new investigators
 - ◆ 70% recently funded by NSF
- ◆ **Success rates**
 - ◆ Unsolicited proposals less than 10%
 - ◆ CAREER about 15%
 - ◆ Initiatives about 10% (varies widely)
 - ◆ Lowest in Engineering Directorate
 - ◆ Dropped in half since 2000

12

Distribution of Average Reviewer Ratings

FY 2005



Number of Proposals: 41,758 (31,966 Declines & 9,792 Awards)

CAREER: Proposal Review

- ◆ Evaluated using NSF's two merit review criteria:
 - ◆ What is the intellectual merit of the proposed activity?
 - ◆ What are the broader impacts of the proposed activity?
- ◆ Reviewers are also asked to consider the capability of the applicant to make an integrative contribution to both education and research and to integrate diversity in all program activities.

14

Advice on SOTL (Scholarship on Teaching & Learning)

- ◆ **Decide your level of activity, but do some**
- ◆ **CAREER Panels impressed with existing activities with something new**
- ◆ **Ensure chair is aware of your plans
(Often post-tenure activity)**
- ◆ **IRB Approval probably necessary**
- ◆ **Focus on an area you enjoy
Learning styles, technical communications,
experiential learning, multidisciplinary design,
K-12 outreach, . . .**
- ◆ **Publish in ASEE, Wikis, Conferences, ...**

15

CAREER: Departmental Letter

- ◆ **Departmental Letter Must**
 - ◆ **Include standard three-sentence endorsement**
 - ◆ **Describe departmental/institutional support**
 - ◆ **Verify self-certified PI eligibility information**
- ◆ **Only one letter support letter, others are letters of collaboration!**
- ◆ **Annual reports should include department chair re-endorsement and support of CAREER PI**

16

Your Audience: The CAREER Panel

- ◆ **Are reading 8-10 proposals (including the last three on the airplane)**
- ◆ **Other panelists are probably reading them real time—make them easy to scan**
- ◆ **Are the most distinguished and motivated**
(They know your advisor better than they know you. They want to see you leave the nest ...but not stray too far. They are a bit conservative)
- ◆ **Are more general than most, as all CAREERS within one program are evaluated in one panel**
- ◆ **Spend more time on non-competitive proposals**
- ◆ **Rank competitive proposals**
- ◆ **Is often associated with a professional meeting**¹⁷

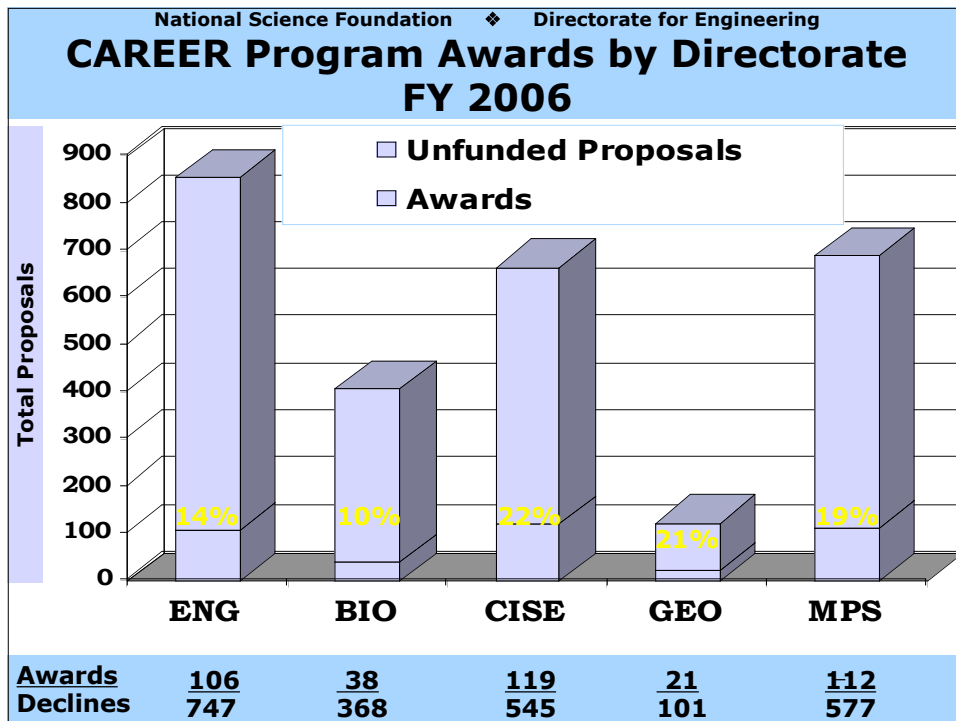
CAREER: Award Duration and Size

- ◆ **5-year duration**
- ◆ **Minimum award size of \$400,000**
- ◆ **BIO minimum award size of \$500,000 for FY03**
- ◆ **No maximum award size (but usually \$400,001)**

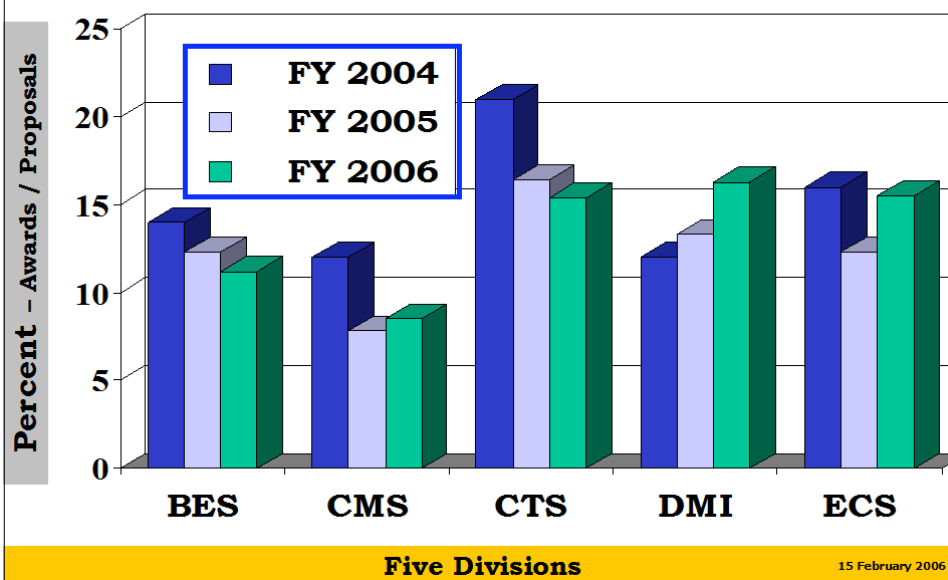
18

CAREER Deadlines

- July 17, 2007** ❖ **BIO, CISE, EHR**
- July 18, 2007** ❖ **ENG**
- July 19, 2007** ❖ **GEO, MPS, OPP, SBE**



National Science Foundation Directorate for Engineering
CAREER Grant Award Success Rates
FY 2004-2006



Learn more about Program Director

- ◆ Ask colleague about monitor's style
- ◆ Probe funding patterns
- ◆ Education
- ◆ Own research area
- ◆ Rotator or staff
- ◆ Program responsibilities

How to Contact the Program Officer

- **Email**
- **Phone call**
 - Prepare questions in advance... listen!
 - Be professional, but be yourself
- **Personal Visit**
 - By appointment
 - During related activity (panel, workshop)
 - Show presentation slides on laptop
- **White paper / pre-proposal**
- **Meet at workshops, conferences**
- **Invite for campus seminar**
- **Volunteer to be panel reviewer**
 - For CBET: www.nsf.gov/eng/cbet/reviewer/

23

White Paper/Preproposal/LOI

- ◆ **Increasingly req'd (but not for CAREER)**
- ◆ **Contains goals, scope, significance, brief description of methods, hypotheses & expected results**
- ◆ **Clear, concise, accurate, exciting**
- ◆ **Addresses broader impact**
- ◆ **Usually 1-2 pages**
- ◆ **Conventions vary by field/agency – seek samples**

24

Intellectual Property

- ◆ **Some faculty uncomfortable discussing ideas before funded**
- ◆ **Although care should be taken, generally best to be open**
- ◆ **Best protection is publish or patent**
- ◆ **Industry: disclosure agreement**

25

Final Tips

- ◆ **Ask colleagues for their proposals and reviews**
- ◆ **Ask a colleague to review your proposal**
- ◆ **Suggest reviewers for your proposal**
- ◆ **Anticipate your audience**
- ◆ **Get help with 'boiler plate'**
 - ◆ **Current and Pending, Facilities, ...**
 - ◆ **IP Agreement** (rare for CAREER)
 - ◆ **IRB Approval** (post award OK)
- ◆ **Don't promise too much**
- ◆ **Submit early**

26

Final Perspective

◆ Don't take yourself or tenure race too seriously.

- ◆ Tenure doesn't help if you're dead.

◆ Lighten up

- ◆ Humor & laughter
- ◆ Bad things happen to all professors – don't dwell on them or let them get you down.
- ◆ Take the university as it is – reform it later.

◆ Take care of yourself

- ◆ Eat right, exercise, sleep enough
- ◆ Spend time with "family"
- ◆ If you *know* something is right thing to do, do it!

27

CAREER: Useful Websites

- ◆ Examples of the "broader impacts criterion":
<http://www.nsf.gov/pubs/2002/nsf022/bicexamples.pdf>
- ◆ CAREER Homepage:
<http://www.nsf.gov/career>
 - ◆ Program Solicitation
 - ◆ Submission Checklist
 - ◆ Awards lists and abstracts
- ◆ FAQ (05-027)
- ◆ <http://www-personal.umich/~schultz>

28