“Applying to NSF CAREER Grant”

UW ADVANCE
Spring Quarter Pre-Tenure Faculty Workshop
May 5, 2015

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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

Workshop Speakers
• Jim Pfaendtner, Chemical Engineering
• Kat Steele, Mechanical Engineering
• Caroline Strömberg, Biology & The Burke Museum
JIM PFAENDTNER  
ASSISTANT PROFESSOR, CHEMICAL ENGINEERING

NSF CAREER review process  

Jim Pfaendtner

NSF review process

- Proposals get read by 3-5 people
- Scores of P/F/G/V/E (or mixes, e.g., E/V) are given
- Each proposal gets a “lead”, 2-3 “reviewers”, and a “scribe”.
  - Reviews are formulated around Intellectual Merit and Broader Impacts highlighting strengths and weaknesses in each category.
- The scribe writes down comments and discussion and writes the panel summary
What is the same, compared to a regular unsolicited NSF grant?
You must have a technically excellent grant:
– Your problem is motivated by engaging and well written background
– Clear statement of research objectives (hypothesis driven when appropriate)
– Convincing preliminary data
– Remember: this is a 5 year project, not a 3 year project [repurposing a losing 3 year NSF grant is not a winning strategy]
– You must clearly state the transformative potential of your work

What is different, compared to a regular unsolicited NSF grant?
• There is a huge focus on integration of research and education
  – Read the solicitation carefully. You also must provide a plan for assessment of your work. [for some reviewers this also means assessing the educational components as well]
• Reviewers are looking for evidence that you are laying the foundation for leadership in your research field
• Your reviewers, in general, will be non-experts in your discipline [you must understand this]

How to win
• The best proposals excite the panel with something new that we have never heard of.
  – Convince us that you are the one we have been waiting for to take your field to the next level
• Excellent research will only get you 80% of the way there.
  – Take it to the next level by proposing something exciting and new in the area of integrating research and education. Something we have never even thought of.
• Play up your prior training and preparation, but just a bit. We want to see evidence that you are thinking of a career in your field and how you are prepared. But don’t overdo it.
• Swing for the fences and don’t play it safe.
**Next steps**

- It is the hardest thing in the world to do for profs, but you need to get your proposal in draft form by the end of June.
- You should plan out several rounds of revision, get people to read and critique your proposal.
  - Something special happens when you can finish early, forget about it for a few days and come back to it. It will get better and better...
- I will read and critique any of your proposals.
  - Get it to me 3 weeks before due date and I will write an actual NSF review and meet with you to discuss it.
  - I won’t pull any punches and I will give you honest feedback. I have no idea about your research, so it should be easier to impress me than your panel.
  - Get it to me less than 3 weeks and I will do my best.
  - This is a very safe offer on my part © nobody has ever taken me up on it.

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**KAT STEELE**

ASSISTANT PROFESSOR, MECHANICAL ENGINEERING

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**NSF Career: Lessons Learned**
Understand:
Workshops

**2014 NSF CAREER Proposal Writing Workshop**
- Review previous funded and unfunded NSF CAREER proposals
- Meet with program directors

The objectives of the proposed research are (1) develop a conceptual framework to predict human movement and neuromuscular control with exoskeletons, and (2) achieve the fabrication of customized exoskeletons with rapid prototyping technology, and (3) create an open-source educational and outreach platform to inspire interest in engineering through the ultimate machine, the human body.

NSF vs. NIH

Review panel comment:
*This has never been done before. I'm not sure it is possible.*

NSF = positive comment
NIH = negative comment

Ideate:
Program Directors & Local Resources

Send a one-pager and ask to chat on the phone.

Independent proposal but consider unique resources & collaborations.

In research, education, and outreach
Prototype:
Preliminary data & peer review groups

Demonstrate you’ve laid the foundation!
This is what you want to pursue!
Research

Challenge: Google+ once a month
In-person once a year at annual conference

In-person once a year at annual conference

Test
Good luck and enjoy the process!

Ability & Innovation Lab
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CAROLINE STRÖMBERG
ASSISTANT PROFESSOR, BIOLOGY & THE BURKE MUSEUM
NSF CAREER grant workshop

May 5, 2015
Caroline Strömberg
Department of Biology
Burke Museum of Natural History & Science

CAREER proposals

• CAREER = grant that will launch some major aspect of your research program and role as educator for the next 5+ years
• The proposal is about YOU and YOUR research (as opposed to collaborative research)
• “Equal” parts research and teaching:
  → Research described in less detail
  → Broader impacts described in much more detail
• Integrate these parts as much as possible

General strategy

• Prior experience with writing grants helps somewhat
• Read several successful CAREER applications from a broad range of related fields—what are themes?
• Interview the authors of these proposals!
• Give yourself (and your Chair) plenty of time
• Get letters of agreement early
Intellectual merit

• Define long-term career goals with a research program that both:
  – Plays on your strength/proven track record
  – Constitutes something new and exciting

• Write convincingly to a general audience: less jargon, less detail, less qualifiers

• Important balance between making it sound ambitious yet doable

Broader Impacts

• Pick broader impacts that fulfill the following:
  – What’s your passion?
  – What would benefit your research?

• Leverage existing programs or infrastructure!!!
  → again, helps balance between ambitious and doable

• Do your homework!!
• Get letters of agreement
• Include assessment part
• Budget should be ~50% broader impacts

Broader Impacts—what I did

• Undergraduate training (summer stipends)
• Experience-based lab in upper division course
• Exhibit in Burke/Biology (help from undergraduates)
• Girls in Science afterschool program for middle school girls
Q&A SESSION

Our Next Workshop...
Stay tuned for our next CAREER Abstract Workshop:

Date: Thursday, June 18
Time: 2:00 – 3:30 p.m.
Location: Loew Hall 355

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
THANK YOU!