

**UWADVANCE**

**“Applying to NSF CAREER Grant”**

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

University of Washington Center for Institutional Change

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**ANGELA BALLASIOTES**

PROGRAM MANAGER, MATH ACADEMY, COLLEGE OF  
ENGINEERING

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**STEPHANIE GARDNER**

ASSOCIATE DIRECTOR, LSAMP, OFFICE OF MINORITY  
AFFAIRS & DIVERSITY

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**EVE RISKIN**

ASSOCIATE DEAN OF DIVERSITY & ACCESS, COLLEGE OF ENGINEERING

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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>



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**Workshop Speakers**

- Jim Pfaendtner, Chemical Engineering
- Kat Steele, Mechanical Engineering
- Caroline Strömberg, Biology & The Burke Museum

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**JIM PFAENDTNER**  
ASSISTANT PROFESSOR, CHEMICAL ENGINEERING

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NSF CAREER review process

Jim Pfaendtner

J. Pfaendtner

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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

J. Pfaendtner

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**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

J. Pfander

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**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*]

J. Pfander

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**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.

J. Pfander

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### 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

J. Pfander

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**KAT STEELE**  
 ASSISTANT PROFESSOR, MECHANICAL ENGINEERING

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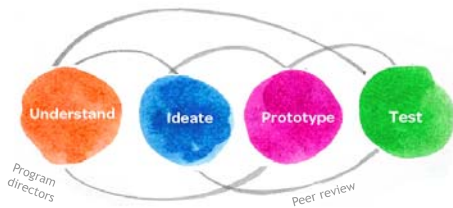
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### NSF Career: Lessons Learned



Kat Steele

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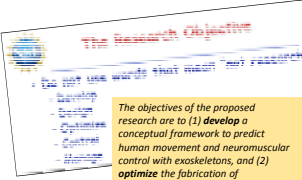
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Understand:  
Workshops

**2014 NSF CAREER Proposal Writing Workshop**

Review previous funded and unfunded NSF CAREER proposals.  
Meet with program directors.  
Slides available: <http://nsf.imse.ksu.edu/nsf/NSF2014/resource.htm>

*The objectives of the proposed research are to (1) develop a conceptual framework to predict human movement and neuromuscular control with exoskeletons, and (2) optimize the fabrication of personalized 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.*

Kurt Stearns

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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

Kurt Stearns

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Ideate:  
Program Directors & Local Resources



**Letters of support**  
LW Orthopaedics  
LW Prosthetics & Orthotics  
CELT  
DO-IT  
WISE & STARS  
North Carolina State  
LW Department Chair

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

Independent proposal but consider unique resources & collaborations.  
In research, education, and outreach

Kurt Stearns

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Prototype:  
Preliminary data & peer review groups

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

Research

Teaching

Outreach



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

Kat Steele

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Test  
Good luck and enjoy the process!



Ability & Innovation Lab  
Kat Steele  
[kmsteele@uw.edu](mailto:kmsteele@uw.edu)  
206-685-2390

Kat Steele

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**CAROLINE STRÖMBERG**

ASSISTANT PROFESSOR, BIOLOGY & THE BURKE MUSEUM

University of Washington Center for Institutional Change

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**NSF CAREER grant  
workshop**

**May 5, 2015**

Caroline Strömberg  
Department of Biology  
Burke Museum of Natural History &  
Science

C. Strömberg

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**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

C. Strömberg

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**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 on

C. Strömberg

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### 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

C. Stromberg

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### 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

C. Stromberg

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### 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



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## Q&A SESSION

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## 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

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## 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

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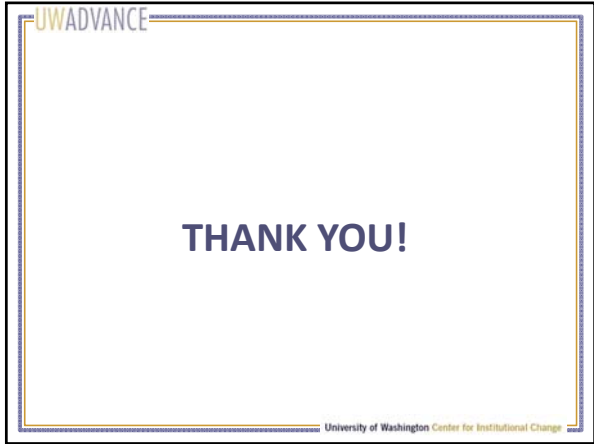
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