Applying for NSF CAREER Awards

Spring Quarter Pre-Tenure Workshop

April 26, 2022
CAREER Awardees and Panelists

> Sam Burden, Assistant Professor, Electrical and Computer Engineering

> Chelsea Wood, Associate Professor, Aquatic and Fishery Sciences

> Jim Pfaendtner, Chair and Professor, Chemical Engineering

> PSA: CAREER “Speed Dating” Abstract Review and Writing
  June 27th 2:30pm—4pm in ECE 303
Sam Burden
Assistant Professor, Electrical and Computer Engineering
• Sep 2015 – started as Asst Prof in UW ECE
• Apr 2016 – received “CISE Research Initiation Initiative” (CRII) grant from NSF CPS program
  – 2-year grant – PM advised to hold off on CAREER for 1 or 2 years ...
  – ... my kid was born in Aug 2017, so I ended up opting for 2 years
• May 15 2018 – reached out to CPS PMs for feedback on CAREER idea
  – feedback was lukewarm, so I looked for a different program
• May 30 2018 – reached out to M3X PM for feedback on CAREER idea
  – feedback was kinda discouraging (they “didn’t ‘get’ my idea” and gave pointed critiques ...)
• Apr 2019 – reached out to M3X and DCSD PMs for feedback on CAREER idea
  – feedback was MUCH more positive – ENG division seems much more receptive than CISE
• July 2019 / Jan 2020 – CAREER proposal submission (#1) to M3X / rejected by M3X 😞
• Apr 2020 – reached out to M3X PM for feedback
  – they were supportive but I overreached – they encouraged resubmitting CAREER and submitting an EAGER (!)
• July 2020 / Jan 2021 – CAREER proposal submission (#2) to M3X / funded by M3X 😊 !!!
• start thinking early, ask for advice / examples, and attend workshops
  – some NSF programs offer in-person workshops – I’ve heard mixed reviews (may not be worthwhile)
  – most ‘friends’ are willing to share their successful proposals – good friends also share rejections / reviews 😊
• reach out to PMs by April (May is late)
  – send a 1-page “whitepaper”, e.g. a draft of the Project Summary along with an overview figure (usually ends up as Fig 1 in the proposal) and key citations (biased toward self, but including others to indicate field)
• listen VERY carefully to EVERYTHING the PMs say
  – if they ask questions or point out weaknesses / elements that don’t “fit” (the program, the CAREER, etc), don’t get defensive – they are telling you things that will not review well ← fix these before submitting
• Programs and Divisions vary greatly – look at all your options
  – check what CAREER proposals were funded, look for trends and gaps so you can distinguish yourself
  – look at funding levels! ENG has significantly increased amounts in recent years, but CISE hasn’t …
• don’t get discouraged! you are great, your ideas are great, and you deserve to be funded 😊
  – even if CAREER doesn’t work out, you will get great feedback, and you can submit to other opportunities

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**NSF CAREER – general advice**

Sam Burden

Assistant Professor and Associate Chair for DEI in UW ECE
• research plan should:
  – sound fresh & exciting to people in your area
  – be biased toward the high-risk / high-reward end of the spectrum
  – build on your strengths – as an individual, but also as a member of your institution & field

• education and outreach plan should:
  – integrate with your research
  – be evidence-based and accountable
  – leverage established programs

• my personal recs for ‘established programs’ you can leverage at UW:
  – Riverways – education partnerships in underserved tribal and Latinx communities
    https://expd.uw.edu/riverways/
  – STARS – engineering undergrads from low-income / first-gen / underserved backgrounds
    https://www.engr.washington.edu/stars

NSF CAREER – specific advice
Sam Burden
Assistant Professor and Associate Chair for DEI in UW ECE
Chelsea Wood
School of Aquatic and Fishery Sciences
ecology of parasites in marine and freshwater ecosystems
• **Sep 2016** – started as an Assistant Prof at UW
• **Oct 2018** – received a grant from NSF’s Biological Oceanography program
• **Mar 2019** – hoped to write a CAREER proposal this spring, but wound up getting swamped with a new field course
• **Mar 2020** – hoped to write a proposal this spring, but hahaha no
• **Mar 2021** – hoped to write a proposal this spring, but was worried about applying for the first time in my last year of eligibility and did a lot of waffling
• **Apr-Jun 2021** – got my act together and applied for a CAREER from the Division of Environmental Biology
• **Dec 2021** – heard that my CAREER was funded
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• anticipate discipline-specific critiques & cut them off at the knees
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• leave yourself time to polish
Jim Pfaendtner
Chair and Professor, Chemical Engineering
THIS DOES NOT COUNT AS ONE OF MY SLIDES!

> **Fun Fact:** I have two sheepdogs *(Boltzmann and Millie)* named after famous physicists.
NSF PROPOSAL REVIEW AND RANKING 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
> The panel will bin your proposals in three categories: highly competitive, competitive and not competitive
  – NC will not get funded, and often not discussed at the panel (no panel summary)
  – Most / all of HC will get funded
  – Most / all of C will not get funded
> Jim’s advice: don’t worry about this, get the top ranked proposal and you will get funded
SIMILARITIES AND DIFFERENCES COMPARED TO REGULAR GRANTS

Same: you still need a great proposal

> 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 a bad strategy]
> You must clearly state the transformative potential of your work
> Broader impacts should also address the NSF’s mission of workforce development and broadening participation

Different: integration of research and education

> 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.
  – This now means assessing the success of your research outcomes
> The plan to integrate research and ed is DIFFERENT than the ‘broader impacts’
> 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 specific research subfield
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.
- All parts of your CAREER should be coherently connected (research, education and broader impacts)

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.

Meaningfully and authentically convince the panel you want to make an impact in broadening participation in your field

Swing for the fences and don’t play it safe
More Resources
Some UW Broadening Participation Contacts

> **OMAD College Access programs:**
  – [https://www.washington.edu/omad/pre-college-recruitment/](https://www.washington.edu/omad/pre-college-recruitment/)

> **OMAD student services programs:**
  – [https://www.washington.edu/omad/services-for-uw-students/](https://www.washington.edu/omad/services-for-uw-students/)

> **CoEnvr DEI programs:**
  – [https://environment.uw.edu/about/diversity-equity-inclusion/](https://environment.uw.edu/about/diversity-equity-inclusion/)

> **Arts and Sciences DEI resources:**
  – [https://artsci.washington.edu/about/diversity-equity-inclusion](https://artsci.washington.edu/about/diversity-equity-inclusion)

> **CoE DEI resources:**
  – [https://www.engr.washington.edu/about/diversity](https://www.engr.washington.edu/about/diversity)
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Questions?