

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 😊 !!!**

I sought advice from ADVANCE workshops, NSF programs, friends, etc. throughout this time

- **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



- **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>



Chelsea Wood

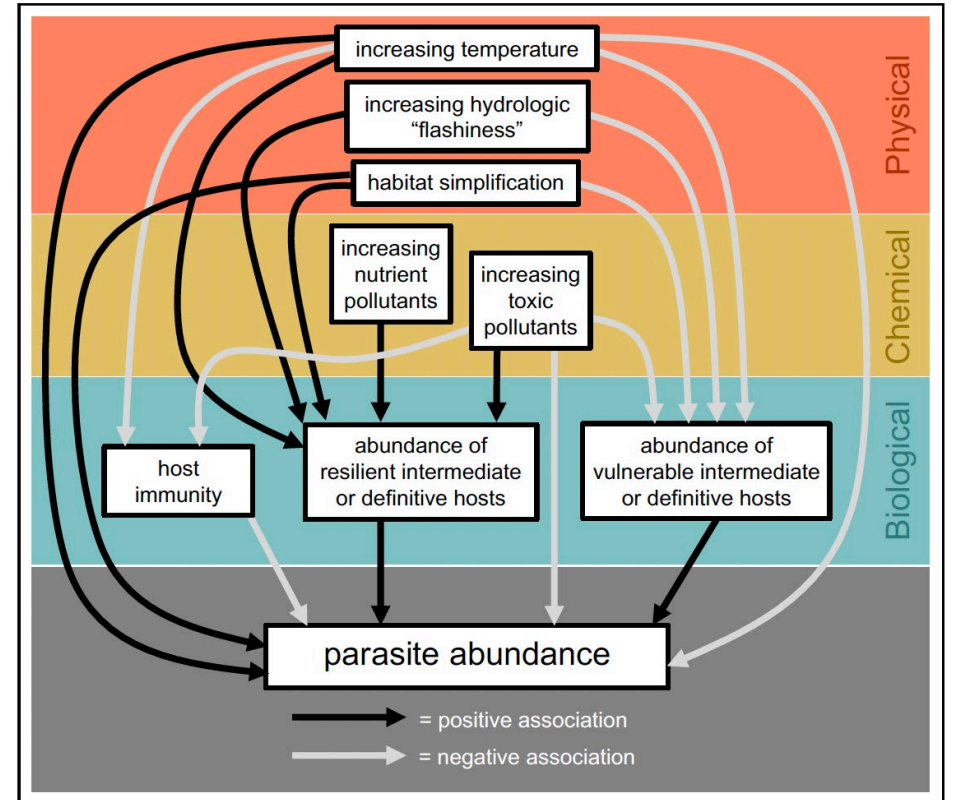
School of Aquatic and Fishery Sciences

ecology of parasites in marine and freshwater
ecosystems

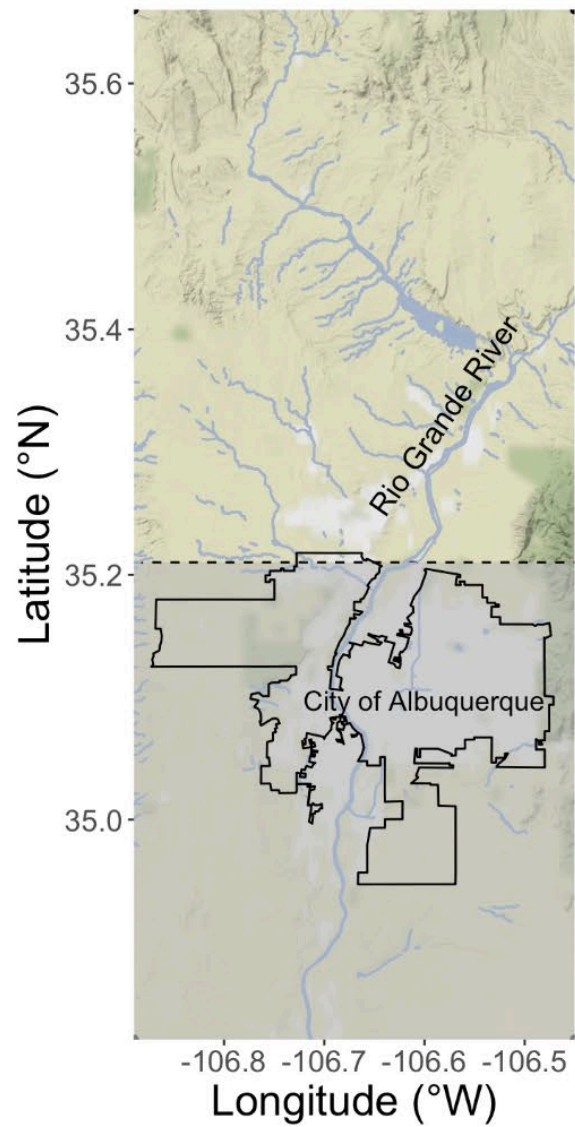


- **Sep 2016** – started as an Assistant Prof at UW
- **Oct 2018** – received a grant from NSF's Biological Oceanography program
- **Mar 2019** – hoped to write a CAREER proposal this spring, but wound up getting swamped with a new field course
- **Mar 2020** – hoped to write a proposal this spring, but hahahaha 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

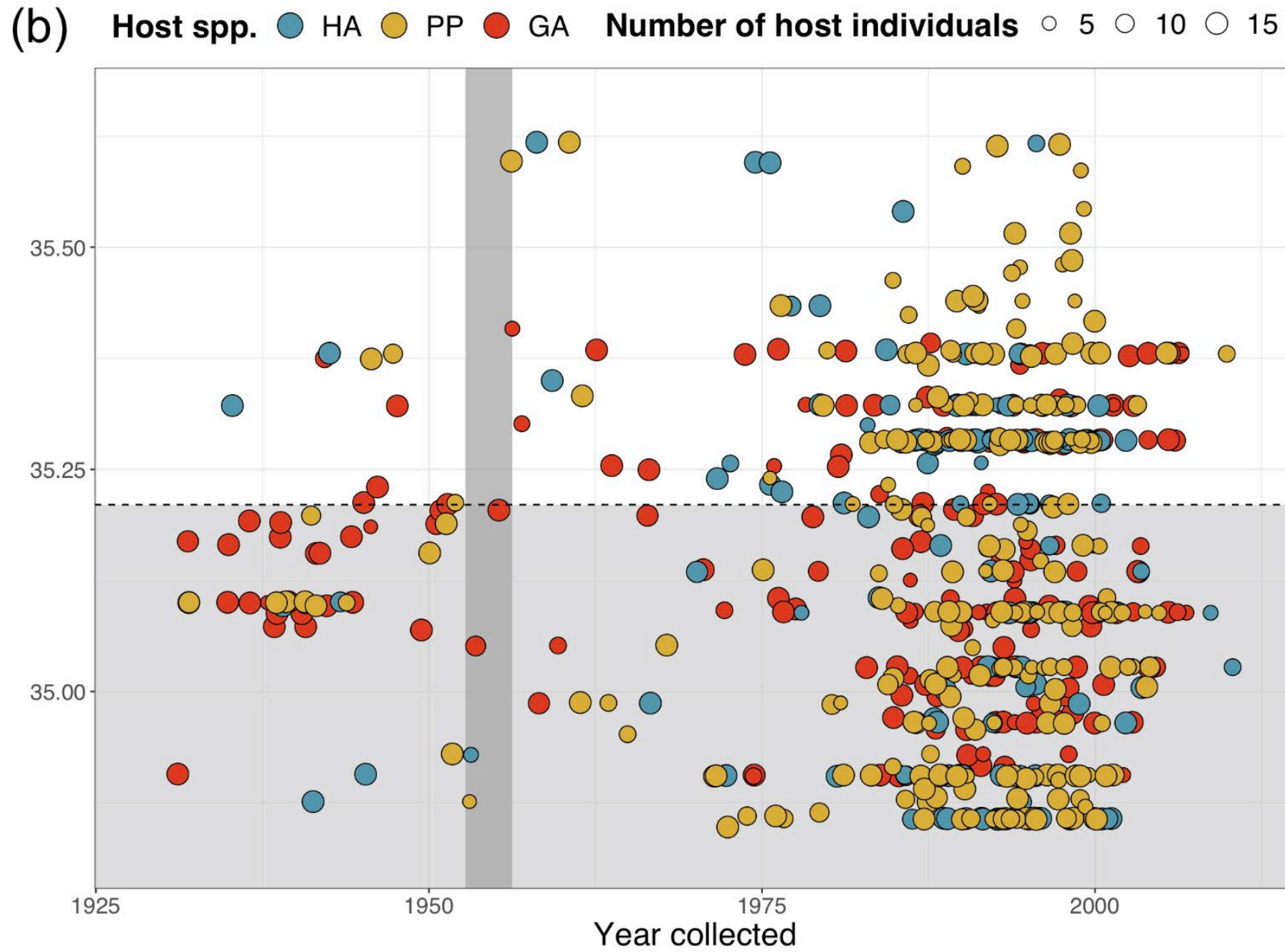
- clear conceptual framework
- anticipate discipline-specific critiques & cut them off at the knees
- include prelim pubs and data



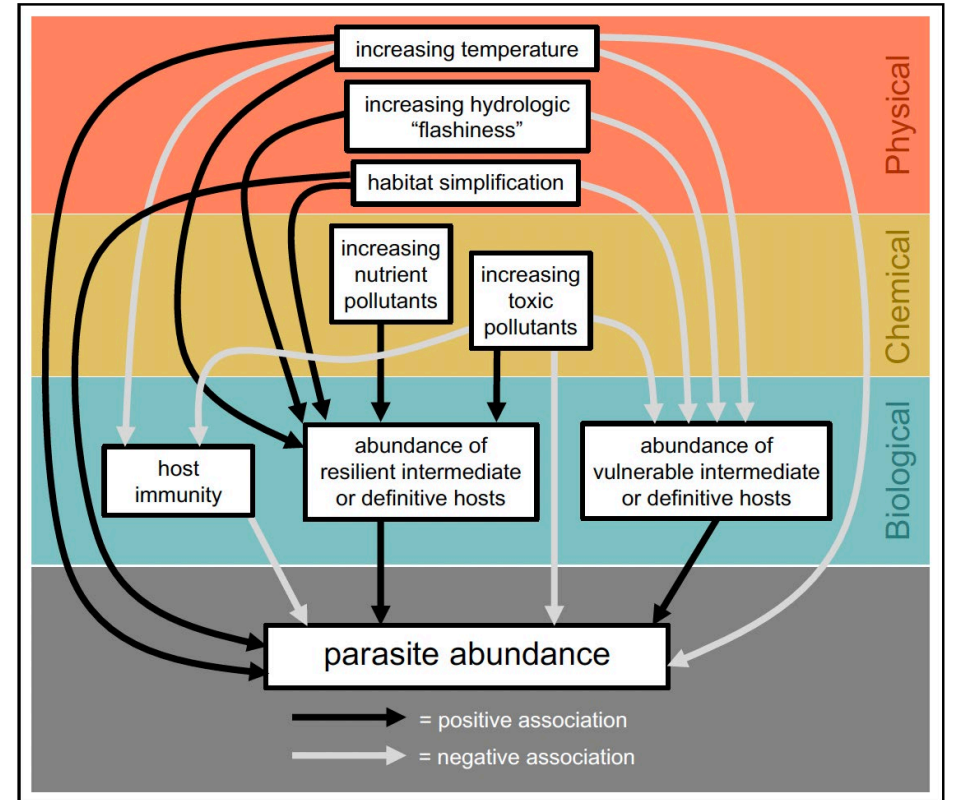
(a)



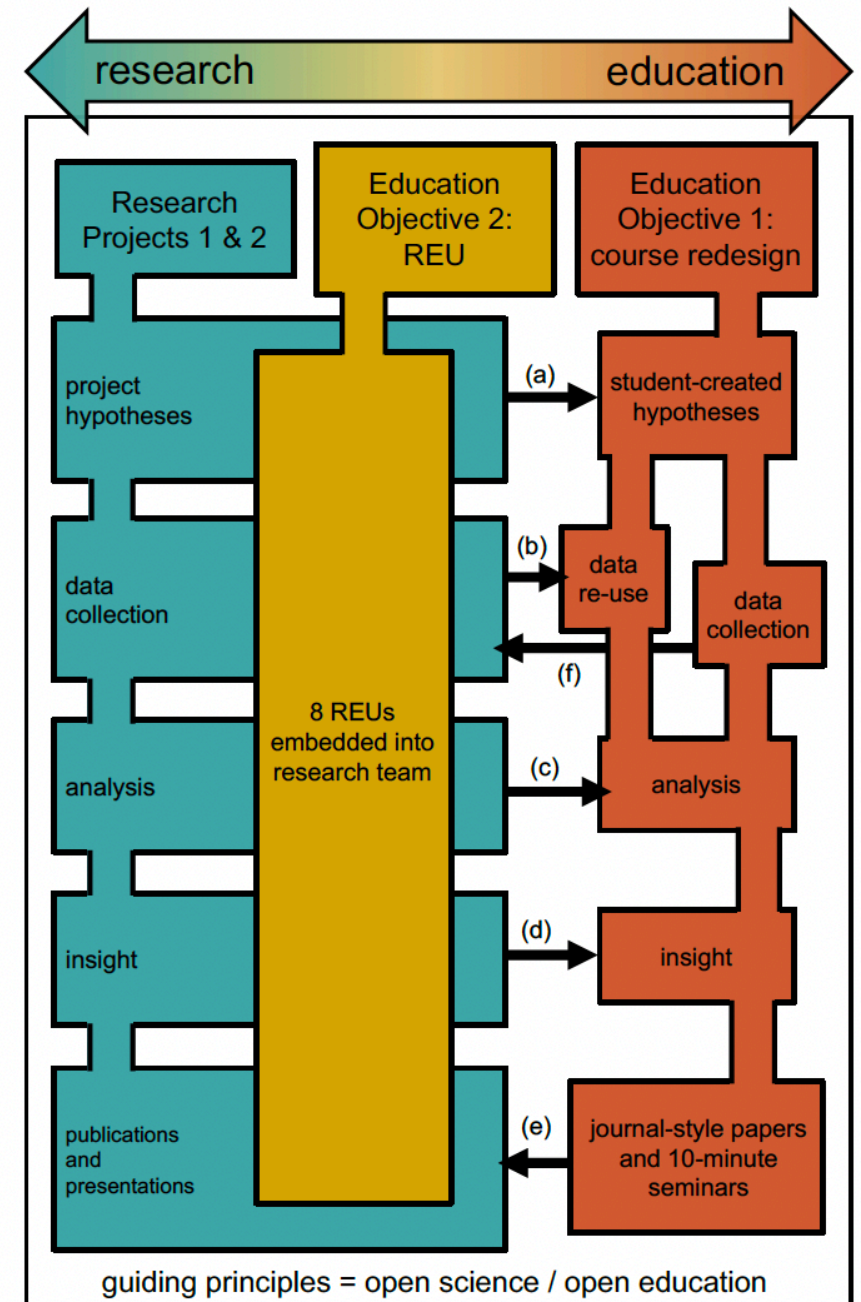
(b)



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- anticipate discipline-specific critiques & cut them off at the knees
- include prelim pubs and data
- look to successful proposals for ed inspiration & find opportunities where your leverage is unique
- lean on your colleagues – even those outside your field
- a picture is worth a thousand words



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- a picture is worth a thousand words
- leave yourself time to polish



Jim Pfaendtner

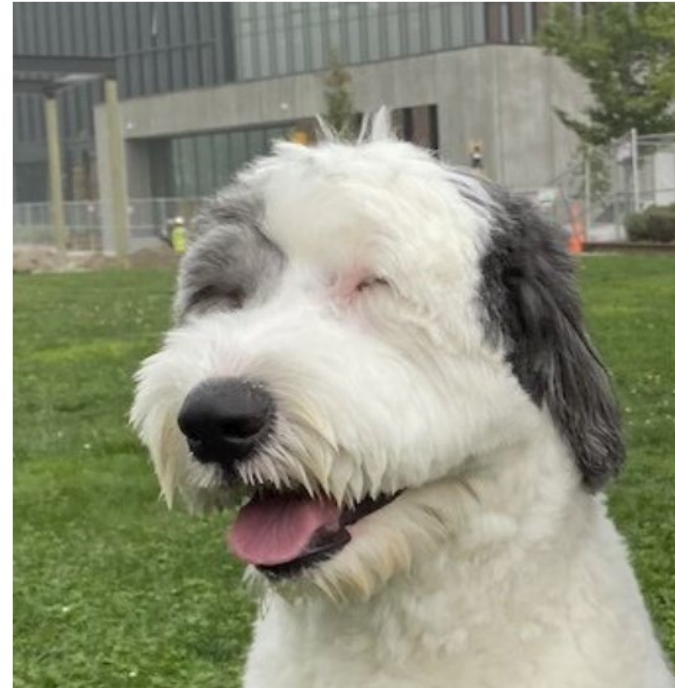
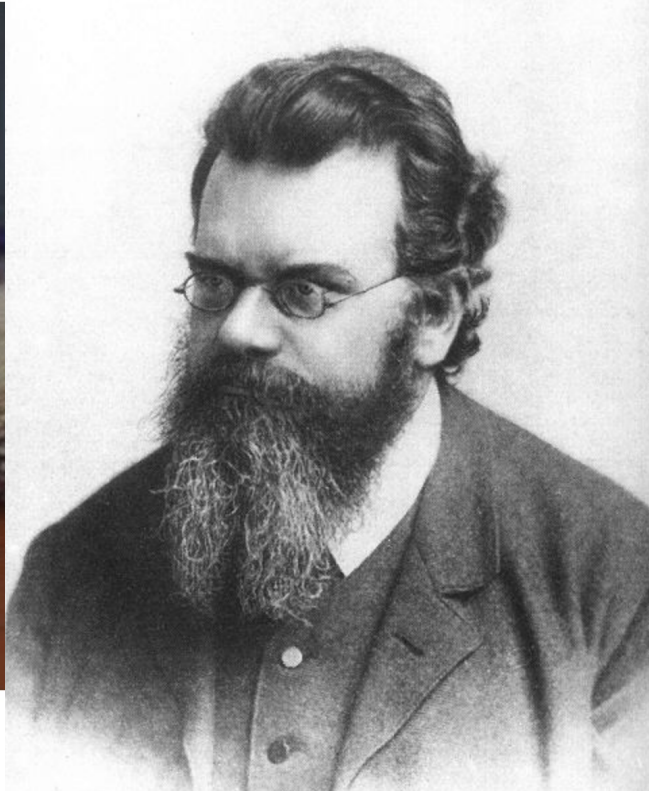
Chair and Professor, Chemical Engineering

THIS DOES NOT COUNT AS ONE OF MY SLIDES!

- > *Fun Fact: I have two sheepdogs (Boltzmann and Millie) named after famous physicists*



BOLTZMANN



MILLIE



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**



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.**
 - **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/>
- > **OMAD student services programs:**
 - <https://www.washington.edu/omad/services-for-uw-students/>
- > **CoEnvr DEI programs:**
 - <https://environment.uw.edu/about/diversity-equity-inclusion/>
- > **Arts and Sciences DEI resources:**
 - <https://artsci.washington.edu/about/diversity-equity-inclusion>
- > **CoE DEI resources:**
 - <https://www.engr.washington.edu/about/diversity>



Reminder:

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Call for RSVPs forthcoming
