

# Tips on Writing a Successful NSF CAREER proposal

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**May 4th, 2009**

# About Me

- **Assistant Professor**, Department of Mathematics (since '06)
- **Adjunct Assistant Professor**, Department of Applied Mathematics (since '08)
- PhD from MIT, Applied Mathematics, '06 (*Random Matrices*)
- Post-doc (Miller Fellowship, Mathematics) at UC Berkeley, '03-'06 (*Numerical Analysis, Numerical Linear Algebra*)

# Proposal record

- Had never written a proposal prior to coming to UW
  - Wrote a regular, 3-year, basic NSF proposal (submitted **Aut '06**)  
**REJECTED**
  - Wrote an NSF CAREER proposal (submitted **Sum '08**)  
**ACCEPTED\***
- \* = not officially through yet

# Analysis of Proposals

- The '06 proposal was submitted to **DMS, Applied Mathematics**
  - Very ambitious research plan in *Random Matrices*
  - Details a little sketchy
  - Fairly simple **Broader Impact** statement
  - Was judged to be perhaps too ambitious
  - Was also judged perhaps not to be applied enough

# Analysis of Proposals

- The '08 (CAREER) proposal was submitted to **DMS, Applied Mathematics**
  - Tied in *Random Matrices, Numerical Linear Algebra, and Scientific Computing*
  - Title: “Synergistic Interactions between [...]”
  - Proposed problems build on existing work; new projects; and one hard, important problem
  - Wrote in a diversified educational component

# What I have learned

- A good proposal should have a strong unifying theme
- One should submit to the right program (and write accordingly)
- Good writing really matters as much as good ideas/projects

# Tips for the Proposal Structure

- Intro: place for **self-promotion** and **expertise advertising**
- Break up into sections corresponding to problems, and subsections (**description**, **proposed approach**, etc.)
- Pictures help! But put in **relevant** pictures
- Titles, subtitles, spaces, **bold script**, *italics*, underlines
- Make it readable and very clear

# Tips for the Proposal Content

- Emphasize the importance of the problem in each section
- Put in enough content to give a general idea/intuition (slightly more than colloquium-style); pictures, tables, etc.
- Also put in a few technical details for the experts



# Tips for the Educational Component

- Diversify:
  - Classes and student mentoring
  - Lecture notes, book
  - Intradepartmental activities
  - Interdepartmental activities
  - University-wide initiatives
  - Outreach programs
- Put in things that you are likely to be involved in anyway; strike a balance so you don't end up with too much on your plate

# Tips for Writing and Editing

- Have both an expert and a non-expert read proposal and pay close attention to their comments
- Write convincingly and confidently
- Include “easy pickings” as well as ambitious projects
- Ask for everything you want, they will cut budget anyway
- Talk to your program director at NSF

# One more word on “Border” or “Fence” projects

- There may be special programs to apply to
- If not, may be a hard sell (is it X or Y?) so choose program wisely (more likely to be interested in problem?... more likely to have money? )
- Think business-like: turn weakness into strength. Explain why YOUR background makes YOU uniquely qualified to work on the problem
- Unique perspective of both fields, as well as tool and technique accessibility
- Write proposal with program in mind

**In Conclusion...**

**BEST OF LUCK!**