Discussion of reading 2: Background to writing
Coming up with a good topic for a grant proposal

If you don’t have a compelling, novel idea that will drive your field vertically, you’re unlikely to be funded. No amount of “window dressing” - grantsmanship - can overcome lack of a good idea.

*From the Grant Application Writer’s Handbook*
Defining the problem you want to address

1. Within the scope of your overall research interests, select a niche area that is not overworked (very few reviewers will care about funding your application if what is proposed only confirms or horizontally extends the research findings of others)

2. Identify the long-term goal you have within the niche area (doable in a career!)

3. Identify the next logical step that must be taken, one that can be resolved in a single period of grant support (typically 3 or 4 years)

From Chapter 2 of “The grant application writers workbook” but note that the implied chronology is not typically what happens in practice.
1. **Niche that is not overworked**: Character of precipitation in different climates (a lot of work on this but not overworked as very challenging problem)

2. **Long-term goal**: Develop theories for all aspects of precipitation distribution (intensity, frequency, spatial and time scales, clustering) and evaluate in observations and climate models

3. **Next logical step**: Study causes of dynamical contribution to changes in precipitation in simulations with climate models
Extensive background reading on what others have done

1. Background reading is critical to make sure you don’t duplicate other work

2. It also helps in writing the background section of your proposal, so make brief notes on relevant papers

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_I make it a point to read papers or books by authors whose writing style I have a high regard for. This can be anything—classical fiction, scientific papers written during the Victorian period, etc.—to erase the unfortunate memory of the numerous dry, badly written papers one inevitably has to read as background to the research one is presenting._

_Kerry Emanuel, Massachusetts Institute of Technology (cited in Schultz)
Generating your preliminary idea

1. As you read and think about the problem, ideas as to which gaps in knowledge are most important, and how to fill them, will occur to you: write them down.

2. However, many of your early ideas will probably prove sophomoric as you become more knowledgeable!

3. Keep going until you come up with a good idea that you are excited about and that has not been covered before.

*From Chapter 2 of “The grant application writers workbook”*
1. Niche that is not overworked: Character of precipitation in different climates (a lot of work on this but not overworked as very challenging problem)

2. Long-term goal: Develop theories for all aspects of precipitation distribution (intensity, frequency, spatial and time scales, clustering) and apply to observations and climate models (complex and idealized)

3. Next logical step: Study causes of dynamical contribution to changes in precipitation in simulations with climate models

4. Preliminary idea: Use omega equation in midlatitudes and 2-mode model in tropics to better understand dynamical contribution to changes in precipitation in complex climate models
Assess your idea

1. Will this positively impact my field and enable a vertical advance?

2. Can I convince others of this?

3. Do I have the ability to pursue it? (time, expertise, need co-I’s?)

4. Check what else has been funded in this area such as on the NSF website for a given program: click on “what has been funded” (also a good idea for getting to know your agency and program)

5. Seek constructive criticism from colleagues

*From Chapter 2 of “The grant application writers workbook*
Class activity

1. Define the research problem you want to address and come up with the preliminary idea (20 minutes):
   i. Niche that is not overworked
   ii. Long term goal
   iii. Next logical step
   iv. Preliminary idea

2. Assess idea with your neighbor (10 minutes)
   i. Will this positively impact my field and enable a vertical advance?
   ii. Can I convince others of this?
   iii. Do I have the ability to pursue it?

3. Share with class
Reading 3: Effective writing

Schultz, Eloquent science (pdf available at MIT libraries)

Section 8: Effective paragraphs
Section 9: Effective sentences
Section 10: Effective words and phrases
Section 12.10: A final admonition

Discussion leader?