

So you have to write a proposal . . .

Welcome to Research!

Science Research Preparation

January 5, 2012

Prof. Penny Hirsch
The Writing Program
Northwestern University
phirsch@northwestern.edu

Writing isn't usually a science student's favorite activity . . .



You would rather be in the lab . . .

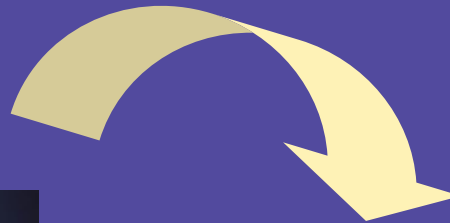
www.flickr.com/photos/hermida/366713331/

. . . but scientists do a lot of writing!

- Lab reports
- Research reports
- Grant proposals
- Policies, procedures, protocols
- White papers
- Professional journal articles
- Textbooks
- Conference papers
- Speeches
- Articles for the popular press and company newsletters



To do that writing, you need to move from . . .



www.flickr.com/search/?q=writer&w=all



www.flickr.com/search/?w=all&q=writer+at+work&m=text

Who am I to start helping you do that?

30 years of communication teaching & consulting

- **At Northwestern**

- Professor & Assoc. Director, Weinberg Writing Program
- Lecturer in the McCormick School
- Faculty co-chair & a founder of Engineering Design and Communication (EDC)
 - Faculty Fellow in the Segal Design Institute
 - Researcher in science and engineering writing pedagogy and assessment

- **Principal in my own communication consulting firm**

- Communication Partners (www.communipartners.com)
 - Many scientists as clients: e.g. Baxter Healthcare, Amgen, Rehabilitation Institute of Chicago
 - Familiar with many types of science writing:
 - policies & procedures, internal audits, progress reports, presentation slide decks, etc.

This experience tells me why *you*, as a science student, can write a good proposal



You're smart & logical.

You're writing about something that matters to you.

Other people will help you!

What is a proposal?

According to Scott Montgomery (2003)*, a proposal is:

1. a request

2. an argument

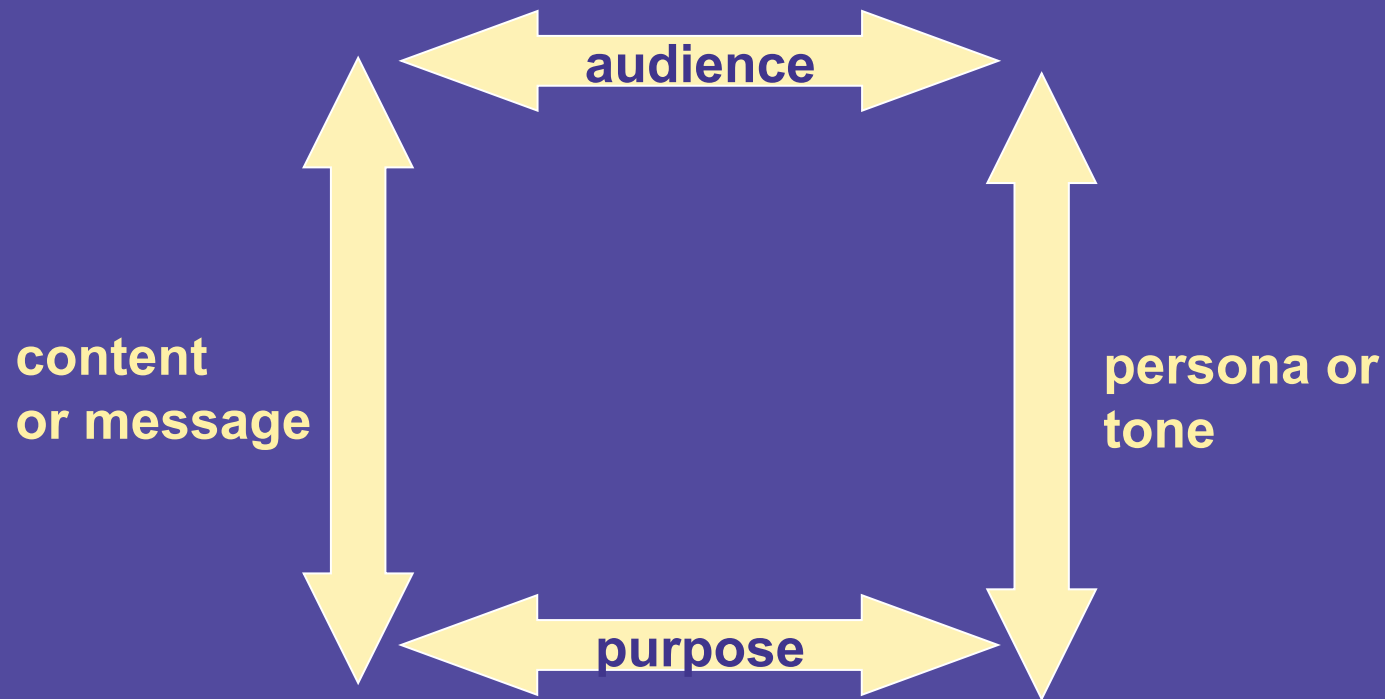
3. a blueprint

4. a promise

**The Chicago Guide to Communicating Science, Univ of Chi Press*

**Let's use this 4-part scheme
along with
a “communication square”
to analyze your task**

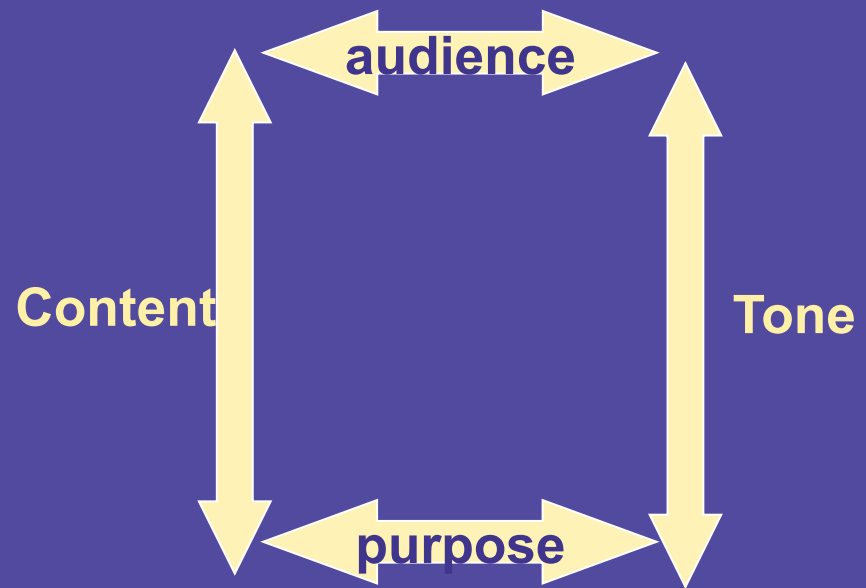
A “communication square” = a *conceptual framework* you can use for everything you write!



First: consider the proposal as a *request* for your audience

You're asking
evaluators to read
your work & assess
its worth for funding

Who are the
evaluators (your
audience)?

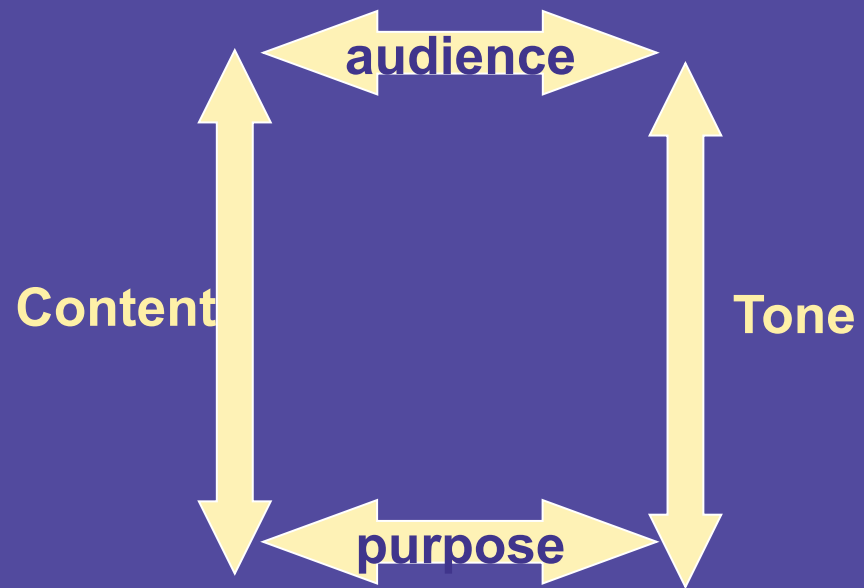


Busy scientists and non-scientists who
have a lot of proposals to read (and
value conciseness!)

Second: your proposal is an *argument* about how your work will help solve a problem

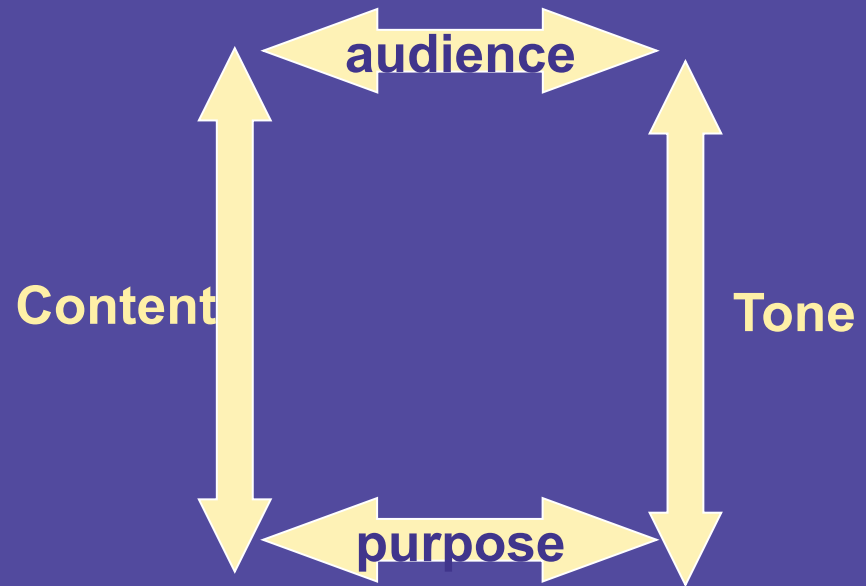
It needs to:

- Identify a gap in knowledge that needs to be filled
- Explain how your proposed work will make a *significant* contribution to filling that gap
- Prove that you are qualified to do the work



Third: your proposal is a *blueprint* or well-considered plan to solve the problem

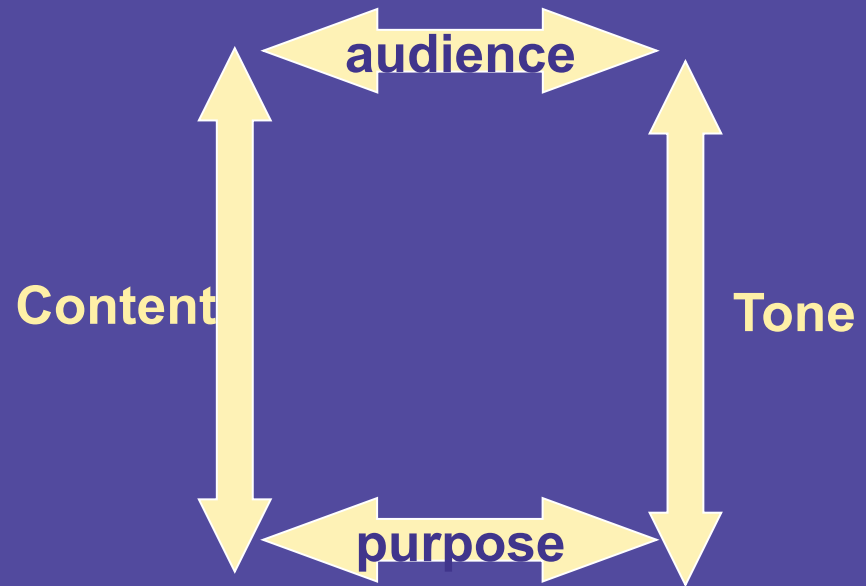
- Concrete research plan
- Clear methods
- Reasonable timeline for scope of work
- Specific, reasonable budget
- List of equipment needed (if relevant)



Finally: your proposal is a *promise* that you will carry out your plan

Readers will trust you if you present yourself as:

- Serious
- Straightforward
- Conscientious
- Well prepared
- Professional



**Translated into writing,
what does all this look like?**

To reach your audience right away, start with general, non-technical language

- Audience = experts and non-experts
- Therefore, successful proposals start with general language

Example from KL's proposal:

Alzheimer's disease is a neurodegenerative condition characterized by the gradual onset of severe dementia and the loss of the ability to learn and recall information. Over 5 million Americans have Alzheimer's, and today it is the sixth-leading cause of death in the U.S. (Alzheimer's Assn 2009).



Shows importance of problem

Make your key points easy to find

- State your purpose clearly and early, or use headings to make purpose or key questions stand out
- Organize your material to make it easy for evaluators to read

**In ZP proposal: Purpose is stated in paragraph 2:
“I plan to study . . .”**

In MH proposal: Purpose appears at the end of the introduction.

“I want to know if the same reduction in polyps would be seen with pharmacologic inhibition of 5-LO. In other words, I want to see if a functional deletion of the 5-LO enzyme, using a pharmacologic blockade of 5-LO, will also inhibit the formation of polyps and in turn the development of cancer.”

Content must include what evaluators will be looking for

Merit criteria usually include:

- Good **understanding of the science** presented
 - Background: Lit Review (citations & reference list)
 - Work in your lab
- **Significance / importance** (Why is this work needed? What gap will it fill? What will it lead to?)
- **Feasibility**: is the proposed project practical? Can it be carried out in the time presented? Can it be done by someone with your preparation?

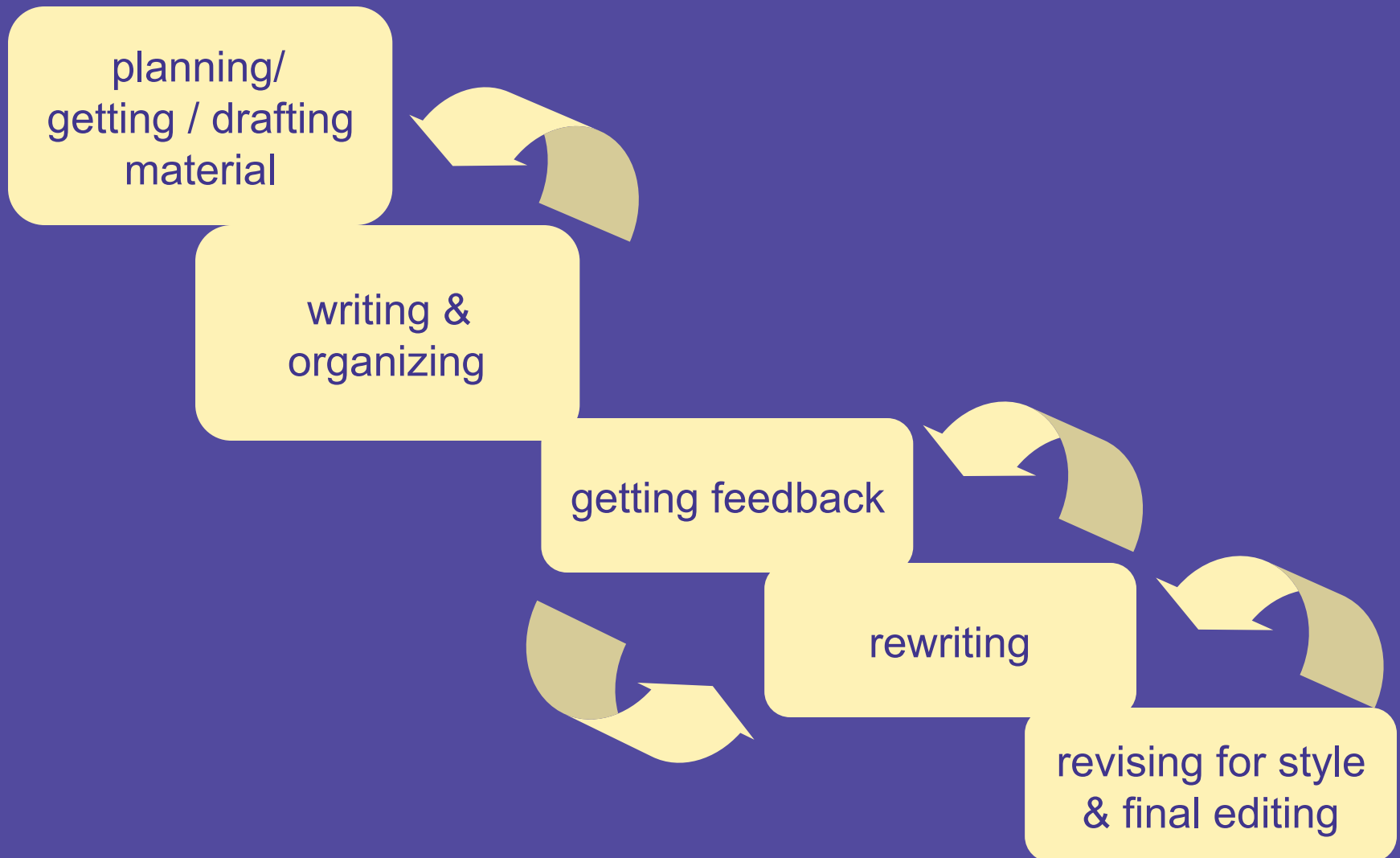
What about Persona or Tone? (how you sound in the proposal)



Successful proposals:

- Use personal pronouns (“I”) because you’re talking about yourself
- Are well organized so that you appear well organized (headings, topic sentences)
- Are concise with carefully chosen words – to make you seem confident
- Persuade with reasons, facts, and citations rather than emotion
- Are free of errors – so that you look like a careful researcher

You can achieve this by following a recursive process: drafting, getting feedback, revising



You can achieve this by following a recursive process: drafting, getting feedback, revising



This course will guide you through the process

- **Today's workshop: a chance to examine successful proposals in more detail**
 - Expected sections and organization (e.g. Lit Review, Methods)
 - Effective language (e.g. ZP: “the cusp of commercialization”)
 - Evidence to back up general statements (see good paragraph on preparation in MH proposal)
- **Later in the process: checklists to help you review each other's drafts**
 - First for content: completeness, accuracy, logic
 - Then for style: conciseness, transitions, readability
- **Finally, feedback from outside readers – and practice presentations**

So there's every reason to be positive about the outcome

- If you do a good job, you *will* be funded
- **Be optimistic!**
 - Every draft -- even notes -- will take you forward
 - A proposal is **short** – so you can do it
 - No question is stupid; don't be afraid to ask
 - It's okay to cut things out
- **Don't be afraid to criticize each other's work**
 - But be kind!
- **Get help from your facilitators, but use other campus resources also**
 - The Writing Place
 - Librarians
 - Faculty and grad students in your lab

Good luck!