

How to Craft a Winning Proposal?

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Start your independent research career as soon as possible

- ***Independent publications***

- *no mentors; research ownership*

- ***Research grants:***

- Single investigator grants
 - Beginning grants: Murdock Trust, PRF, RCSA
 - Federal Funding: NSF, NIH, DOE, NASA
- Collaborative grants
- Instrumentation grants (build capacity)

Start your independent research career as soon as possible (Proposal prep)

- Develop your independent research ideas as early as possible
- Become familiar with the big players in the field
- Network
- Think outside the box, be creative!
- Become familiar with opportunities for beginning faculty
- Prepare a “grant-writing” calendar
- Write a five year plan for your research

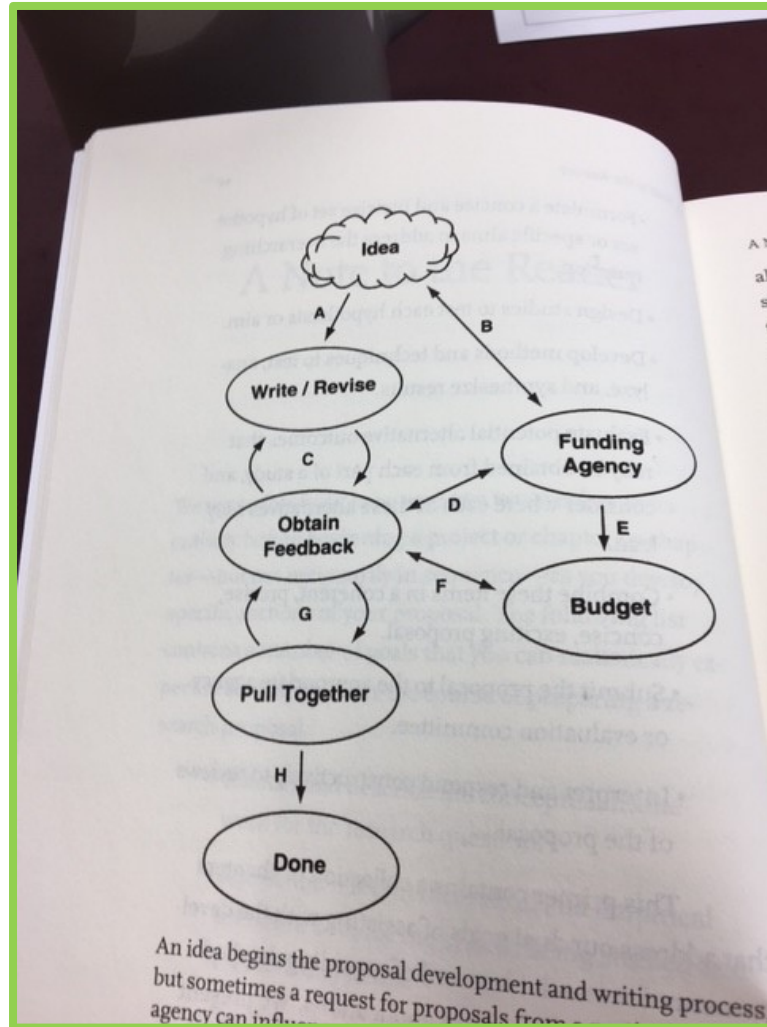
Proposal Development Process

Start with and idea...

DEVELOP

SHARE

REVISE



What makes an excellent proposal?

- A **carefully** written plan
- An **exciting** subject
 - A **creative** approach
 - **New ideas** to solve long-standing problems
 - **High risk/high reward**
 - **Transformative** outcomes
- **Established** collaborations (if needed)
- **Realistic** expectations
- A plan tailored to a **specific foundation/program**
- **Feedback from colleagues!**

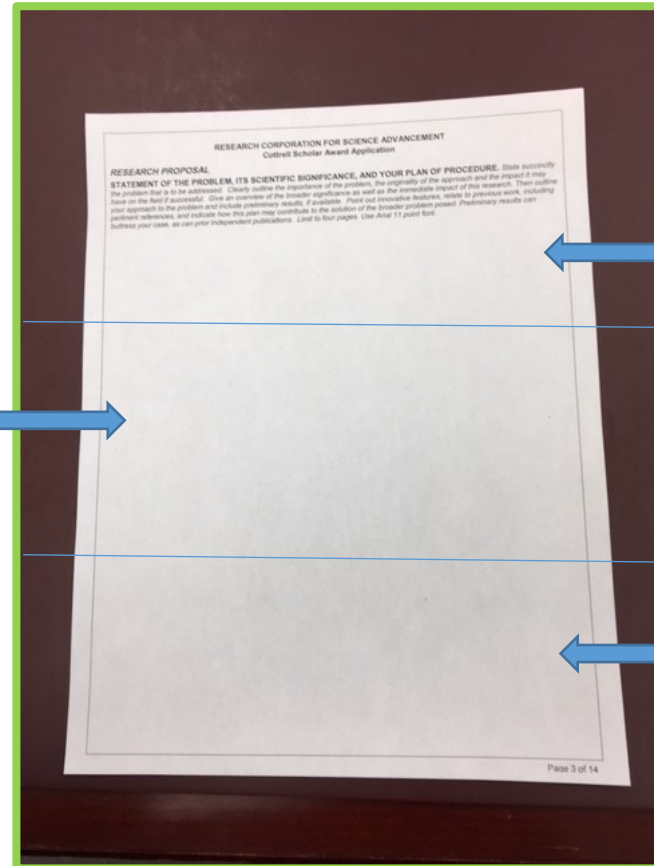
Every Part Counts

- **Title** – needs to reflect proposal's goals
- **Abstract** – succinct description of proposal's goals
- **Research Narrative** – as much detail as possible
- **Suggested Reviewers** – experts, please!
- **Budget 1** – request equipment only if needed to accomplish your plan
- **Budget 2** – prioritize student expenses
- **Short Bio** – brief and direct

"I didn't have time to write a short letter, so I wrote a long one instead"
Mark Twain

The First Page

- **Originality**
- Ownership
- Working Hypothesis
- Approach and Methodology
- **Feasibility**



- **Significance**
- Science in context of existing challenges
- Relevant citations

- **Long term goals**
- Student Involvement
- Research Environment at your Institution

Common Declination Reasons

- Plan reviews below the *competition bar*
- Research is *derivative* of previous work with mentors
- Unclear *significance*
- **Feasibility** case is not compelling
- Narrative *lacks detail*, too vague
- Lack of clearly stated *hypothesis*
- Lack of clearly stated *goals*
- Omissions of *relevant literature*
- *Unrealistic expectations*

If turned down and the program allows, **RESUBMIT!**

Avoidable Annoyances

- Proposal **not tailored** to program – Is this Cottrell Scholar or NSF CAREER?
- **Sloppy writing**, too small font size, illegible figures, typographical errors
- Too much **jargon**
- **Overstated** significance
- **Empty space**
- Not supported claims, **missing relevant references**
- “Suggested reviewers” who are **not experts** in the field
- **Publications** not the same as **Manuscripts in Preparation**
- **External funding** not the same as **Internal Support**

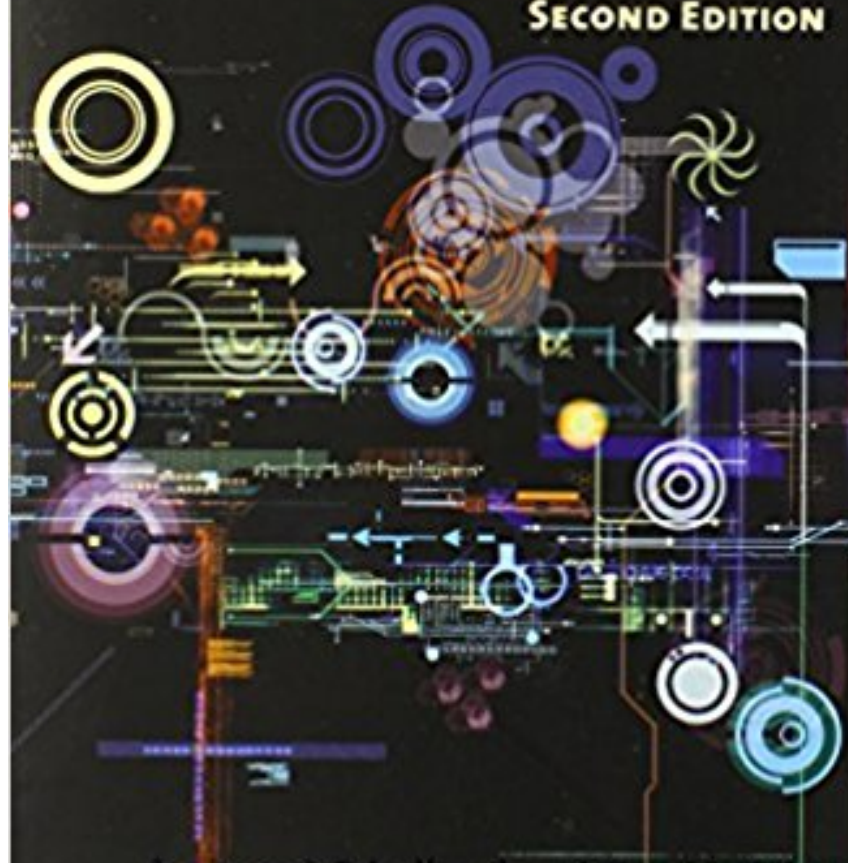
“The less said the better”

Jane Austen

"This guide helps writers render a thesis or grant application that stands out from the competition."—*Science*

writing successful science proposals

SECOND EDITION



Andrew J. Friedland and Carol L. Folt