Discussion of reading 6: Proposal basics

• The grant application writer's workbook NSF Fastlane Version
  Chapter 6: Merit review and common mistakes

• PAPPG: Chapter II, Section 2d "Project description"
Proposal basics
NSF program websites

• Example of an AGS program: Climate and large-scale dynamics

• Website at: https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=11699
  - Program officers (handbook suggests you could email them your initial plan and say you want to ‘maximize programmatic relevance’ followed by phonecall)

  - Previously awarded grants
Types of NSF grant

- Standard grant (3-4 years typically + no-cost extension)
- Continuing grant (expect to receive more funding over time)
- Faculty Early Career Development (CAREER) award (like standard grant but with integrated educational plan and for 5 years)
- Proposals for specialized equipment
- Early concept grants for exploratory research (EAGER) (2 years, up to $300K, reviewed internally)
- Grants for Rapid Response Research (RAPID) (1 year, up to $200K, reviewed internally)

Source: Grant Application Writer’s Handbook, Chapter 3
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Source: Grant Application Writer's Handbook, Chapter 3
NSF proposal: Components

• List of suggested reviewers to include or exclude
• Cover sheet (title, address, etc.)
• Project summary (1 page): overview, intellectual merit, broader impacts
• Project description (15 pages, no urls)
• References cited
• Biographical sketch (2 pages)
• Spreadsheet with collaborators over the past 4 years
• Budget
• Budget justification
• Current and pending support
• Facilities, equipment and other resources
• Data management plan
• Postdoctoral mentoring plan (if include support for a postdoc)
• Letters from collaborators (if any)
NSF proposal: Project description

The recommended format for the 15-page Project Description of a standard grant is:

1. Overview and Objectives
2. Intellectual Merit
3. Background:
   - Review of Relevant Literature
   - Results From Prior NSF Support
   - Preliminary Studies
4. Relation to Other Work In Progress:
   - By the Principal Investigator
   - By Investigators Elsewhere
5. Research Plan:
   - Develop each Specific Aim
     - Introduction
     - Research Design
     - Expected Outcomes
     - Potential Problems and Alternative Approaches
   - Timetable
6. Broader Impacts

Source:
Grant Application Writer’s Handbook,
Page 40
Example: “Improved understanding of the response of mean and extremes precipitation to climate change”

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Writing proposals is somewhat different from writing papers

Table 1
Academic Writing versus Grant Writing: Contrasting Perspectives

<table>
<thead>
<tr>
<th>Academic Writing</th>
<th>Grant Writing</th>
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</thead>
<tbody>
<tr>
<td><strong>Scholarly pursuit:</strong></td>
<td><strong>Sponsor goals:</strong></td>
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<tr>
<td>Individual passion</td>
<td><strong>Service attitude</strong></td>
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<td><strong>Theme-centered:</strong></td>
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<td>Objective, dispassionate</td>
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From “Why Academics Have a Hard Time Writing Good Grant Proposals” by Robert Porter, Ph. D.
Writing proposals is somewhat different from writing papers

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<td><strong>Persuasive rhetoric:</strong></td>
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<tr>
<td>Explaining to reader</td>
<td>“Selling” the reader</td>
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<tr>
<td><strong>Impersonal tone:</strong></td>
<td><strong>Personal tone:</strong></td>
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<tr>
<td>Objective, dispassionate</td>
<td>Conveys excitement</td>
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<td><strong>Specialized terminology:</strong></td>
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<td>“Insider jargon”</td>
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Activity: Avoiding common mistakes

• Write in clear, simple sentences

• Avoid the use of nouns as adjectives “lower respiratory tract iron burden”

• Avoid weak words and phrases
Example 1: Rewrite

The behavior of climate-model snowfall extremes is governed by an optimal temperature related to the temperature dependence of humidity and the rain-snow transition. Our first specific aim is to examine whether or not the optimal temperature is relevant for snowfall extremes in observations. We hope to use the observations to better constrain the optimal temperature that is found in climate models.
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an optimal temperature related to the temperature dependence of
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observations to better constrain the optimal temperature that is
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The behavior of snowfall extremes in climate models is governed
by an optimal temperature related to the temperature dependence
of humidity and the rain-snow transition. Our first specific aim is to
examine the extent to which the optimal temperature is relevant
for snowfall extremes in observations. **We expect to** use the
observations to better constrain the optimal temperature that is
found in climate models.
Example 2: Rewrite as a clear, simple sentence.

“The objective of this study is to develop an effective commercialization strategy for solar energy systems by analyzing the factors that are impeding commercial projects and by prioritizing the potential government and industry actions that can facilitate the viability of the projects.”

From “Why Academics Have a Hard Time Writing Good Grant Proposals” by Robert Porter, Ph. D.
Example 2: Rewrite as a clear, simple sentence.

“The objective of this study is to develop an effective commercialization strategy for solar energy systems by analyzing the factors that are impeding commercial projects and by prioritizing the potential government and industry actions that can facilitate the viability of the projects.”

“This study will consider why current solar energy systems have not yet reached the commercial stage and will evaluate the steps that industry and government can take to make these systems commercial.”

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Reading 7: Overview and Objectives

• The grant application writer's workbook NSF Fastlane Version:
  - Chapter 7: Overview and objectives (bulleted outline)
  - Page 57: Example of an overview and objectives section

• Next class:
  - Bring your laptop
  - Have a grant idea in mind for writing the overview and objectives section