Workshop on Grant Writing for Academic Success

August 22 and 23, 2006

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Office of Faculty Affairs and Development
University of Iowa Carver College of Medicine
Agenda

- How to think about writing
- How to be clear and well-organized
- How to use natural positions of emphasis
- How to engage the reader
- How to be convincing
- How to attend to the writing process
HOW TO THINK ABOUT WRITING
How to think about writing: writing is a process

- Writing is not only a means to share information and ideas, but is a way to develop and refine them.
- “Use writing as a tool for thinking”
  — Zinsser
- “I write to understand what I think”
  — Verghese
How to think about writing: good writing is clear and convincing

“…terms so clear and direct as to command their consent”—Jefferson

The feature–benefit model
How to think about writing: good writing is reader-based

- Reader expectations
  - Familiar format
  - Clear, logical, understandable
  - important, interesting
- The psychology of reviewers
WRITING IS A PROCESS
William Zinnser

- “Use writing as a tool for thinking.”
- “Take care of the process, and the product will take care of itself.”
- “Freewriting” or brainstorming, then editing
  - You can’t do both at the same time
- Zinnser’s books on the writing process:
  - *On Writing Well*
  - *Writing to Learn*
At least 2 steps to the initial writing process

- A writers
- B writers
At least 2 steps to the initial writing process

- **A writers**
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6
  - 7

- **B writers**
At least 2 steps to the initial writing process

- A writers
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6
  - 7

- B writers
  - 2
  - 5
  - 5
  - 1
  - 6
  - 2
  - 3
At least 2 steps to the initial writing process

A writers
- 1
- 2
- 3
- 4
- 5
- 6
- 7

B writers
- 2
- 5
- 1
- 6
- 2
- 3
At least 2 steps to the initial writing process

- The intuitive stage
  - Freewriting, brainstorming, testing ideas

- The teaching stage
  - Explaining to the reader, linking ideas, organizing them logically
At least 3 steps to the whole writing process

- The intuitive stage
  - Freewriting, brainstorming, testing ideas

- The teaching stage
  - Explaining to the reader, linking ideas, organizing them logically

- The revision stage
  - Fine-tuning for clarity and emphasis
When do you get your best ideas?
When do you get your best ideas?

- Working out
- Driving
- Sleeping (or about to fall asleep)
- On vacation
- In the shower
- When you’re too busy to record them
- When you’re doing something else
Ways to record your best ideas when you have them

- A journal, a log of your ideas
- Index card and pen
- Pocket recorder
- Marker board on office wall
- Telephone message to yourself
- Personal digital assistant
- Your own system
- A measured approach
Freewriting exercise
The writing process: “journaling”

- Write a page a day, every day, in a log of your ideas and observations.
- Read your log to get insight into issues that you cannot understand in real time
  - Weather map analogy
  - Story of the Wright Brothers
  - “The incubation of ideas”
The writing process: a timeline

- “Freewrite” or brainstorm
- Do research to familiarize yourself with the mission of the grantor
- Do literature search
- Put ideas onto notecards or other format
- Consult models of similar work
- Find the best organization to serve your purpose
- Develop preliminary studies
- Get feedback; revise
- Do preliminary studies, submit for publications
- Write draft of proposal
- Solicit feedback on proposal
- Revise proposal manuscript
Attending to the writing process

- Regular time of day
- Regular place conducive to writing
- A positive
  - mental framework
  - physical environment
The incubation of ideas

- Abraham Verghese, MD: story of writing his first book
- Creating an environment for ideas to prosper
- Attending to the process
The incubation of ideas

Abraham Verghese, MD: story of writing his first book

Creating an environment for ideas to prosper

Attending to the process
Other writing ideas

- Use the spoken language to inform the written language
  - Use dictation or speech-recognition software
  - Give a series of talks about your work and plans

- Integrate your physical routine with your writing routine
  - Exercise and then write (“to get the blood flowing”)
  - Write and then exercise (as a reward)
Writing with co-authors

- Plan regularly scheduled meetings
- Decide *who* does *what* by *when*
- Develop a timeline with deadlines
  - Include time for
    - Feedback
    - Revision
GOOD WRITING IS CLEAR AND CONVINCING
The importance of structure to convey clarity and logic

The structure of

- Sentences
- Paragraphs
- Tables, charts, images
- Sections
- Proposal as a whole
How many interpretations should readers get from your writing?
How many interpretations should readers get from your writing?

1
“Misunderstanding in writing is 85% due to structural issues and only 15% due to contextual issues.”

“It is theoretically impossible to forward only a single interpretation. By using natural positions of emphasis, the best an author can do is make available to the reader the interpretation the author wants to convey.”
A sentence has a subject and a verb.

Guideline: 1 idea per sentence
Active vs. passive voice

Active voice
  - Subject—verb—object
    
    *They wrote the book.*

Passive voice
  - Object—verb—subject
  
    *The book was written by them.*
A retrospective study of 301 patients who underwent radical prostatectomy for clinically localized prostate cancer between January 1991 and December 1992 at St. Mark’s and affiliated hospitals was performed.

It is concluded that this program can help our clients in their transition to independent living.
A palliative, noncurative relief of symptoms was reported in women with rheumatoid arthritis taking the oral contraceptive Envoid by several investigators.
Passive to active

1. Find the verb
2. Find the true subject
3. Organize into subject–verb structure
4. Check that the revision conveys the information more clearly

5. A palliative, noncurative relief of symptoms was reported in women with rheumatoid arthritis taking the oral contraceptive Envoid by several investigators.
Several investigators reported a palliative, noncurative relief of symptoms in women with rheumatoid arthritis taking the oral contraceptive Envoid.
Exercise: position of emphasis in a sentence

1) Although the treatment is highly effective, it has significant side effects.
2) Although the treatment has significant side effects, it is highly effective.
3) The treatment has significant side effects, but it is highly effective.
4) The treatment is highly effective, and it has significant side effects.
Position of emphasis in the sentence

<table>
<thead>
<tr>
<th>1\text{st} half</th>
<th>2\text{nd} half</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Position of emphasis is the 2\textsuperscript{nd} half of the sentence

<table>
<thead>
<tr>
<th>subject</th>
<th>verb</th>
<th>“stress position”</th>
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<tbody>
<tr>
<td></td>
<td>the action</td>
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<td>• Information that deserves to be stressed</td>
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<td></td>
<td></td>
<td>• Specific information</td>
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**Example: position of emphasis in the sentence**

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<tr>
<th>1\textsuperscript{st} half</th>
<th>2\textsuperscript{nd} half</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of an X model for Y injury is the goal of this project.</td>
<td>The goal of this project is to develop an X model for Y injury.</td>
</tr>
</tbody>
</table>
Only a select few investigators studied topic X in the last decade.

Topic X has been studied by only a select few researchers in the last decade.
Position of emphasis is the 2\textsuperscript{nd} half of the sentence

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Structure of a paragraph

1st sentence is the most important
- Main idea or the context of the information
- “Topic sentence”
Structure of a paragraph

- Middle sentences: the information
Structure of a paragraph

- Last sentence: a way to carry around the information
Structure of a paragraph

1st sentence is the most important
  - Main idea or the context of the information
  - “Topic sentence”

Middle sentences: the information

Last sentence: summary or evaluation of information
  - eg, “Taken together, these data point to ….”
Structure of a paragraph

- 1\textsuperscript{st} sentence is the most important
  - Main idea or the context of the information
  - "Topic sentence"

- Middle sentences: the information

- Last sentence: significance or relevance of the information; why it is important
Feature–benefit model

- For each key **feature** (fact, data, point, experience) you address,

- Be sure to link a **benefit** (significance, relevance, value, advantage, importance) to it.
Examples of feature–benefit sentences

*In C: Preliminary Studies:* “Preliminary Study 2 gave us the experience we need to perform this type of assay with this type of cell line. Similar assays will be necessary to complete Experiment D.2 (see page 19).

*In D: Experimental Plan:* “We plan to take this approach because it will allow us to...
Consistency in paragraph format

- Allows a reader to “intellectually skim” a document
- Teaches the reader *how to read* the document
  - to get the information efficiently
  - To understand the issue deeply
Tone

- Is a subtle but important issue
- Conveys your attitude
- Communicates a mental picture of you and your project
- Influences how readers
  - Receive the message
  - Understand the message
  - Respond to the message
Tone to convey in proposals

- Thoughtful
- Thorough
- Detail-oriented
- That you can see the big picture
- Both enthusiastic *and* realistic
- NOT to impress, but to convey meaning
Ways to engage your readers

- Use the first person ("I" or "we")
- Use questions
- Give examples
- Tell the story
- Show images
- Use a journalistic approach
Engage your readers by

- Varying the length of sentences
- “Chaining” sentences and ideas
- Transitioning between ideas and paragraphs
- Telling the story
- Using journalistic conventions
Journalistic conventions

- Questions
- Case examples
- Sidebars
- Callouts
- Graphics, images
- Color
- “Readability” of text
To make text readable

Have a reasonable margin width
  – 1 inch is better than ½-inch
  – Consider using two columns per page

- Put line breaks between paragraphs
- Use left justification (as opposed to full justification)
- Use subheads and a numbering system
Effective writers

- Engage the reader
- Tell the story
- Model their writing after proven formats
- Display scholarship
Qualifications for Scholarship

- Think clearly and logically
- Express logical thought clearly and cogently
- Discriminate between the significant and the inconsequential
- Display technical prowess
- Handle abstract thought
- Analyze data objectively and accurately
- Interpret results confidently and conservatively
An effective grant proposal

- Follows the instructions and addresses the mission of the grantor
- Is a marketing document ("sell" the idea)
- Has both
  - A good idea
  - Clear, effective communication
- Is written for both
  - Expert reviewers
  - The "intelligent non-expert" (NIH) or "a learned scholar but not necessarily an expert in the field" (Emory)
Mission Statement

The University Research Committee (URC), a standing committee of the University Senate, is responsible for awarding small research grants to University faculty. Research is defined as scholarly pursuit according to the guidelines of your discipline. These funds are intended to help researchers achieve short-term research goals that can be accomplished in one year. These projects often provide preliminary data needed for extramural grant applications. Grants are peer reviewed and ranked for quality and impact. URC grants are not intended as a continuing source of funding.

Proposals are invited from all faculty throughout the University. Faculty holding temporary positions are not eligible. Projects designed to be completed by graduate students are not supported. Awards may be used for direct research support or release-time support for up to two courses. Release time is ordinarily defined as a release from teaching responsibilities only. Departmental commitments, committee responsibilities, and graduate student support continue during the period of the release time.

The URC is composed of faculty throughout the University and divided into five subcommittees: Biological & Health Sciences, Social Sciences, Humanities, Math & Natural Sciences, and Visual & Performing Arts. Proposals are reviewed by members of the appropriate subcommittee, as chosen by the applicant. Applications should be written for an understanding by a learned scholar but not necessarily an expert in that field. Avoid jargon and place a premium on clarity of presentation.
Research is defined as scholarly pursuit according to the guidelines of your discipline.

- Know the guidelines of your discipline for scholarly pursuit.
- Make a case for how your scholarly pursuit fits the guidelines of your discipline.
These funds are intended to help researchers achieve short-term research goals that can be accomplished in one year.

- Be sure that they are accomplishable with one year.
- Have specific, measurable indications of goal completion.
- Provide a timeline.
These projects often provide preliminary data needed for extramural grant applications.

Stress that the project will produce the preliminary data you need to for extramural grant applications, and how it will do it.

- Match the preliminary data you plan to generate to the specific aims or goals that it will support in other applications.
Grants are peer reviewed and ranked for quality and impact.

- Get feedback from people who have been reviewers.
- **Quality**: Check that the presentation of ideas and the clarity of thought is high-quality; quality proposals will be ranked highly.
- **Impact**: Make a case for the impact of the project; stress how the project will advance understanding of an area or benefit a targeted population.
Applications should be written for an understanding by a learned scholar but not necessarily an expert in that field.

- Do not exclude readers; write to explain, not overwhelm.
- As scholars, reviewers like to understand the issue. If you make it hard for them to understand or follow, they will not feel like scholars and will start looking for items to criticize.
Avoid jargon and place a premium on clarity of presentation.

- Clarity will be rewarded.
- Obscurity will be punished.
Structure of a proposal

- Abstract or project description
- Introduction and specific aims
- Background and significance
- Preliminary data
- Work proposed
- Appendix
Structure of Part II of the NIH PHS 398

- Project description
  - 360 words
- A. Specific Aims
  - 1/2 to 1 page
- B. Background and Significance
  - 2 to 3 pages
- C. Preliminary Studies
  - 6 to 8 pages
- D. Experimental Plan
  - 13 to 15 pages
How to think like a scientist

- Ask questions
- Formulate hypotheses based on those questions
- Design experiments that test those hypotheses

– Janet Rasey, Writing, Speaking, & Communication Skills for Health Professionals
Logical development of plans

- Each section of the proposal justifies the next step
- Each aspect of the proposal can be traced to how it satisfies the main goal
Format of proposal

A. Specific Aim 1
B. Specific Aim 2
C. Specific Aim 3

Background and Significance

C. Preliminary Study 1
C. Preliminary Study 2
C. Preliminary Study 3
C. Preliminary Study 4
C. Preliminary Study 5

Experimental Plan
Format of proposal

Broad, long-term objective

A. Specific Aim 1
B. Specific Aim 2
C. Specific Aim 3

Background and Significance

B. Preliminary Study 1
B. Preliminary Study 2
B. Preliminary Study 3
B. Preliminary Study 4
B. Preliminary Study 5

Experimental Plan
Test of reasoning

- The justification for each step can be traced back through each section of the proposal
  - Use a numbering system for
    - Specific aims
    - Section headings and subheadings
  - Refer your reader to key aims, hypotheses, expected outcomes
Format of proposal

Broad, long-term objective

A. Specific Aim 1
B. Specific Aim 2
C. Specific Aim 3

Background and Significance

Preliminary Study 1
Preliminary Study 2
Preliminary Study 3
Preliminary Study 4
Preliminary Study 5

Experimental Plan
Structure of URC application (suggested): 8 total pages

- A. Objectives: ½ page
- B. Background & significance: 2 pages
- C. Research plan: 4 pages
- D. Specific goals for 1-year time frame: 1 page
- E. Summary: ½ page
URC application format (suggested)

A. Objectives
   - Goal 1
   - Goal 2
   - Goal 3

B. Background and Significance

C. Research Plan

D. Specific goals for 1-year time frame

E. Summary
URC application format (suggested)

A. Objectives
   - Goal 1
   - Goal 2
   - Goal 3

B. Background and Significance

C. Research Plan

D. Specific goals for 1-year time frame

E. Summary
Your writing is “authorized” if

- The proposal manuscript is well-organized
- All logic and reasoning are sound
- The author has
  - Accounted for the development of the ideas in each section of the proposal
  - Traced the background to justify the work
  - Shown how the work will advance the field of scholarship or art
Key concepts

- Form follows function
- Consistency of format
- Linking of lines of reasoning
- Use of positions of emphasis
- The feature-benefit model of selling
- Reinforcing and repeating of important info
- Graphic representation of key ideas
Facts about writing

- Writing is a skill
  - It can be improved with practice

- Writing is a process
  - It takes a number of different steps

- Writing is re-writing
  - “10% inspiration, 90% perspiration”
Clear proposal writing

- Is reader-based
- States objective, hypotheses and planned work *clearly* and *directly*
- Uses
  - Direct, simple sentences
  - Manageable, consistent paragraphs
  - Headings and subheadings, numbering system
Proposal-writing is a process

- Freewrite, then revise for your readers
- Keep a log, or journal, of your ideas
- Use a deliberate, measured approach—an hour a day, every day
- Organize and structure your writing to serve your purpose and the reader’s needs
- Stress the benefits of your points
- Solicit feedback
- Revise, revise, revise
PARTS OF A PROPOSAL
Exercise: title

- Write the title of your project
- Revise title to include the
  - Importance
  - Significance
  - Relevance
  - Value
  - Benefit

of the project
Project description

- Is the reviewer’s first impression of the proposal
- Sets the tone for the rest of the proposal
Project description

NIH instructions: “State the application’s broad, long-term objectives and specific aims, making reference to health relatedness of the project (i.e., relevance to the mission of the agency). Describe concisely the research design and methods for achieving these goals. Describe the rationale and techniques you will use to achieve these goals.

In addition, in two or three sentences, describe in plain, lay language the relevance of the project to public health.
Project description: format
(in about 360 words)

- broad, long-term objectives
- specific aims
- reference to health relatedness of the project (i.e., relevance to the mission of the agency)
- research design and methods (concisely)
- rationale and techniques
- relevance of the project to public health (2–3 sentences; plain, lay language)
Exercise: first sentence of project description

- NIH instructions: “State the application’s broad, long-term objectives….

- Write the first half of the first sentence of your project description:
  
  ____________________________________
  
  ____________________________________
The purpose of this study is to evaluate the effect of structured written emotional expression (SWEE) in decreasing the emotional and physiological burdens in family caregivers of persons with Alzheimer disease and related disorders (ADRD). SWEE is an intervention postulated to facilitate the making of meaning and involves asking participants to write for a brief an account expressing their deepest thoughts and feelings about a stressful and traumatic experience. Negative consequences from the stress of ADRD caregiving are well documented in the research literature with family caregivers being more stressed, burdened, and depressed than non-caregivers. The specific aims of this study are to: 1) determine the effect of SWEE on finding meaning (Finding Meaning Through Caregiving Scale); 2) determine the mediating effects of finding meaning on caregiver burden (Burden Interview), depression (CES-D), self reported physical symptoms (Pennebaker Inventory of Limbic Languidness), and salivary cortisol measured QID over two days; and 3) determine the effect of SWEE on caregiver burden, depression, self-reported physical symptoms, and salivary cortisol. Caregivers will experience a total of three 20-minute writing sessions scheduled every other day. All outcome measures will be collected at pretest, 4th and 5th day post-test, and twice at one-month post intervention. The researchers hypothesize that caregivers experiencing SWEE will report higher provisional finding meaning and that higher provisional meaning is positively associated with lower caregiver burden, decreased depression, decreased self-reported physical symptoms, and decreased salivary cortisol dysregulation. Given the negative health outcomes in family ADRD caregivers, an easily administered and low cost intervention that has an impact on improving the health outcomes is both significant and timely.
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SWEE is an intervention postulated to facilitate the making of meaning and involves asking participants to write for a brief account expressing their deepest thoughts and feelings about a stressful and traumatic experience. Negative consequences from the stress of ADRD caregiving are well documented in the research literature with family caregivers being more stressed, burdened, and depressed than non-caregivers.
The specific aims of this study are to: 1) determine the effect of SWEE on finding meaning (Finding Meaning Through Caregiving Scale); 2) determine the mediating effects of finding meaning on caregiver burden (Burden Interview), depression (CES-D), self-reported physical symptoms (Pennebaker Inventory of Limbic Languidness), and salivary cortisol measured QID over two days; and 3) determine the effect of SWEE on caregiver burden, depression, self-reported physical symptoms, and salivary cortisol.
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The researchers hypothesize that caregivers experiencing SWEE will report higher provisional finding meaning and that higher provisional meaning is positively associated with lower caregiver burden, decreased depression, decreased self-reported physical symptoms, and decreased salivary cortisol dysregulation.
Given the negative health outcomes in family ADRD caregivers, an easily administered and low cost intervention that has an impact on improving the health outcomes is both significant and timely.
Format of a proposal

- Introduction and specific aims
  - *What do you intend to do?*
- Background and significance
  - *Why is the work important?*
- Preliminary data
  - *What have you already done?*
- Experimental plan
  - *What do you intend to do?*
Introduction and Specific Aims

- ½ to 1 page
- Is the second test of whether the reviewer is going to continue to read
The specific aims themselves

- Will appear verbatim in the
  - Project Description
  - Specific Aims
  - Research Plan, which is organized around the aims

- May be referenced in
  - Background and Significance
  - Preliminary Data
The specific aims themselves

- Each should be numbered
- Each should be specific
  - “to characterize” or “to describe” is not specific
- Each should have a clear aim
  - Each should have a hypothesis or hypotheses
    Each aim should have a clear outcome
Specific Aims section: format

1\textsuperscript{st} paragraph
- Broad, long-term objective
- Background
- Relevance to public health or mission of institute

2\textsuperscript{nd} paragraph
- “To achieve our objective, we have designed the following specific aims.”
- Numbered list of aims
  - Under each aim, a hypothesis or hypotheses, if possible
Specific Aims section: format

- Last paragraph
  - Expected outcomes, organized around each aim, if possible
  - Relevance to public health or mission of institute
  - Other benefit statements
Background and Significance

- Sets the stage upon which your work is displayed to full advantage
- Identifies
  - gaps your project will fill
  - Unanswered questions your project will answer
- Ideas and results (your and others’) are
  - Discussed
  - Compared
  - Bought together

Janet Rasey, *Writing, Speaking, & Communication Skills for Health Professionals*
4 Cs of the Background

- **Compare**
- **Contrast**
- **Cite** the literature judiciously
- **Critique** what you have read respectfully
Significance

- To field
- To public health
- To development of methods in the field
- To what the knowledge gained will allow in the future
Background and Significance: format

- **Background:** 1 page
  - Break into 3 or 4 paragraphs
  - Use subheads to orient reader
  - Structure it so it leads to your experimental plan

- **Significance:** 1 page
  - Break into 3 or 4 paragraphs
  - Use subheads to orient reader
  - Make a case for how your work will
    - Fill in gaps in the body of knowledge
    - Add to the field
Exercise: Write 12 sentences (12 min)

- Sentences 1–4 should start
  - “My project is significant because….”
- Sentences 5–8 should start
  - “My project is original because….”
- Sentences 9–12 should start
  - “I and my staff are uniquely qualified to do this work because….”
Preliminary Data

- Shows that
  - you have the ability to do the proposed work
  - your hypotheses are supported by your previous work

- Warnings
  - Sloppy data suggests sloppy work
  - Unclearly presented data suggests unclear thinking
Preliminary Data

- Include
  - data pertinent to/in support of proposed work
  - evidence that you know how to perform a new or complex technique
  - headings and a numbering system
  - graphs, pictures, and descriptive figure legends
  - summary sections that emphasize significance or what you learned from each preliminary project
Preliminary data: format

- If appropriate, organize around specific aims
- Otherwise, have a logical format
  - Broad to specific
  - Chronological
  - Most important to least important
  - Most relevant to least relevant
Experimental plan

Purpose: to convince reviewers that you
  – have a clear overview of the project
  – can see the connections between different parts of the research and the proposal
  – have a framework for the details that follow
    – Description of methods
    – Experimental systems
Experimental plan: format

- Organize by specific aims
  - Repeat each aim at the start of each section

OR

- Start with a general methods section
- Then organize by specific aims
Experimental plan: format

- D. Experimental Plan
- D.1. Experimental Plan for Aim 1
  - D.1.1 Design, Rationale, and Significance of Experimental Plan for Aim 1
  - D.1.2 Methods for Aim 1
    - D.1.2.1 Innovations
    - D.1.2.2 Limitations
    - D.1.2.3 Difficulties anticipated
    - D.1.2.4 Alternative approaches
    - D.1.2.5 Sequence
  - D.1.3 Analysis of data
  - D.1.4 Interpretation of anticipated results
- D.2. Experimental Plan for Aim 2
  (and so on, as above)
- D.3. Experimental Plan for Aim 3
  (and so on, as above)
7 fundamental questions
reviewers ask about a proposal

1. Are the **aims** logical?
2. Is the **hypothesis** valid?
3. Are the **procedures** feasible, adequate, and **appropriate** for the research proposed?
4. Is the research likely to **produce new data** or concepts or confirm existing hypotheses?
7 fundamental questions reviewers ask about a proposal

1. What is the **significance and originality** of the proposed study in its scientific field?

2. Are the **principal investigator and the staff** qualified to conduct the proposed word, as judged by their demonstrated competence, academic credentials, research experience, and productivity?

3. Are the **facilities, equipment, and other resources** adequate for the proposed work, and is the **environment** conducive to productive research?
Biographical sketch

- Write in the **third person** *(she or he)*
- Tell it like a story
- Highlight accomplishments in area
- Emphasize relation to project
- Use examples
- Make it interesting
Exercise: biographical sketch

- Interview the person next to you (5 min)
  - Find out about their ideal project
  - Solicit stories and examples
- Switch places and be interviewed (5 min)
- Write short profile article (10 min)
  - Use WHO—WHAT—HOW format
  - Use questions, stories and examples to engage the reader
- Give it to person profiled
Proposal resubmission

Opportunity to

- Improve proposal and the project
- Show that you addressed all the concerns of reviewers
- Capitalize on the strengths of the application
Response to reviewers

Purpose is to
– Show how you revised the proposal in response to the critiques
– Justify the revisions
– Direct reviewers to the revisions in the proposal

ALSO
– Show that you can be flexible
– Show that you value the critiques and suggestions
Response to reviewers: format

- First paragraph
  - Thank reviewers for their critiques
  - Mention that their suggestions have allowed you to strengthen the proposal (in the following ways…)

- Following paragraphs
  - List critique or summarize reviewer suggestion
  - Detail how you revised the application to reflect the reviewer’s comment; list section or page number in which the revision appears
Response to reviewers: tone

- Genuinely thankful for the guidance to improve the proposal
- Enthusiastic about the added strength of the proposal
- Detail-oriented
- Able to see the big picture and added benefits of revised proposal
Effective use of graphs and legends

- Is especially useful
  - For data
  - To help explain complex ideas
  - To repeat important ideas, concepts, strategies

- How to think about graphics
  - Consider that the reviewers only have time to look at your figures, charts and images—will they get a good sense of the proposal?
When assessing the scientific and technical merit of an application, all NIH review committees use the same criteria:

1. Significance
2. Approach
3. Innovation
4. Investigators
5. Environment

Though peer reviewers don't score applications strictly by review criteria, the criteria are gauges for assessing scientific and technical merit and feasibility. In writing your application, think of your goal as a quest to convince peer reviewers your proposal is important, your approach is logical and innovative, you have the resources to do the job, and you and your collaborators are qualified to accomplish the research.

Also keep in mind that, to a large extent, reviewers judge your application against their ideal outstanding application in your field of science. This is analogous to a dog show, where breeds are judged against their own standard for their breed, but different breeds do not compete with each other.
Timelines

- Show that you have a clear plan
- Show that you have thought through the project
- Show that you can manage the project
- Can include time to
  - Train staff
  - Collect and analyze data
  - Write reports and present papers (disseminate the information)
Exercise: Mind-mapping
(10 min)

- Draw a graphical representation of your project. Include shapes to represent
  - Need for the project
  - Objective and aims
  - Preliminary work
  - Probable outcomes
  - Health benefits to different populations
  - Benefits to scientific inquiry
Follow-up exercise: Mind-mapping

- 2 min: describe the mind map of your project to neighbor
- 2 min: listen to neighbor’s 2-min explanation
- 10 min: Write up neighbor’s project description based on mind map
Selected references

Blake, R and Bly, R. *The Elements of Business Writing*


Ogden, T. *Research Proposals: A Guide to Success*

Rasey, J. *Writing, Speaking, & Communication Skills for Health Professionals*

Reif-Lehrer, L. *Grant Application Writer’s Handbook*

Ziegler, M. *Essentials of Writing Biomedical Research Papers*