

How to Prepare a Research Proposal

Research Proposal Preparation

Step 1: Preparation Phase

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graph TD; A[Step 1: Preparation Phase] --> B[Step 2: Writing Phase]; B --> C[Step 3: Submission]; C --> D[Step 4: Awards and Declinations];
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Step 2: Writing Phase

Step 3: Submission

Step 4: Awards and Declinations

Step 1: Preparation Phase

Preparation Phase

- Selection of the **topic**
- **Planning** the proposal
- Selection of a **working team** (personnel)
- **Literature search**
- Designing a **working plan/experimental design**
- Review of **Proposal Submission Forms**
- **Start Writing** the proposal

Selection of the Research Topic

- Depends on:
 - Your **interest**
 - **Interest of the supervisor/organisation**
 - Available **facilities**
 - **Continuation** of previous research work
 - A **National problem**
 - A **recent discovery**

"What makes a good proposal?"

A good proposal stems from a
good concept

PROPOSAL PLANNING

- Clear **objectives and goals**.
- The development of a proposal needs to be **systematic and orderly**.
- Honest assessment of one's **potential** specific to the selected topic.
- **Adequate preparation before starting to write.**
- **Creative, critical and constructive review and guidance.**

Objectives of the proposal

- A good proposal begins with a clear idea of the **goals and objectives** of the project
 - Why it will be a significant improvement
 - Envision what improvements this project will make, and then determine what activities and course(s) must be developed, what instruments will be needed, or what coalitions must be formed to make the desired improvements. **Focusing first on the goals and objectives helps ensure that the activities are designed to reach those goals.**
 - What resources (e.g., people, time, equipment, technical support) will be necessary

Addressing Primary Questions

Three questions are basic to the majority of research proposals:

1. What does one want to accomplish?

2. Why is it important?

- potential significance of the project.
- how the project relates to work done by others and why it would be of interest to others.
- how the research will contribute to some larger accomplishment, whether that is solving a specific problem, gaining knowledge, or addressing issues of significance e.g to the population, patients.

3. What approach should be taken?

- **steps taken in achieving the aims of the project.**
- **what will be done to answer the posed research questions; what information is needed, and how the information will be obtained.**
- **Developing answers to the following key "word" questions can provide an excellent foundation for the writing process.**
 - i. What will you do?**
 - ii. Why is it important?**
 - iii. Who will do the work?**
 - iv. How are they qualified?**
 - v. How will you perform the work?**
 - vi. Why is that the best approach?**
 - vii. What results will your efforts bring?**
 - viii. What value will the results have?**

The Research Team

- The first thing to put together is the research team.
- Plan and organise the team carefully.
- One person has to be in charge- **YOU**.
- Each member of the team must have his/her own responsibilities.

Selection of a working team (personnel)

- Working Team: must be carefully selected
- Depends on:
 - experience
 - research interest
 - enthusiasm
 - reputation
 - cooperation
 - personal relations

Collaborative Research-Building Coalitions

- Collaborative research is more more **productive**
- When several departments, several institutions, or constituencies outside the academic community are involved in the project, it is important to have these groups involved in the planning and to obtain **letters of commitment to the project.**
- Where appropriate in terms of the project's size and its potential for national impact, consider designing the project with an **advisory board of outside experts** to provide additional levels.
- Even in smaller projects, an advisory board of outside experts from the college or local community can provide additional levels of expertise and experience.
- **Build consensus on your idea within your own department and institution.**

**Organize a good working team.
Distribute duties and develop a firm
schedule of activities needed to
prepare the proposal in time to meet
the proposal deadline.**

Literature search & review

- An essential step during preparation stage
- Success of the proposal depends on the clear knowledge of:
 - what has been done by others?
 - how was it done?
 - what was the outcome?
 - what needs to be done?
- This requires a **comprehensive literature search**
- Each member of the research teams can contribute
- Literature review must be thorough, critical & updated

Purpose of Literature Search

- The purpose of the literature search is to acquaint you with major research findings in the topic area so that you can relate your planned work to what has already been done.
- An understanding of the relevant literature permits you to demonstrate your qualifications by proving that you are thoroughly familiar with your field and that you have a balanced knowledge of it.

Gathering Background Information

- The **relationship of the proposed project to work of others** should be described.
- The proposal must give appropriate attention to the **existing relevant knowledge base**

Designing a **working plan/experimental design**

- Working plan of the project must be carefully designed
- Show the activities to be carried out during the project
- State the time frame for each activity
- State who will be responsible for each activity

Review of Proposal Submission Forms

- Several Organisations require submission of the research proposal on a Special Form
- Review the Form carefully
- Obtain all information required in the Form
- Copy the Form
- (Fill information in the copy first)

Start Proposal Writing



Step 2: Writing Phase

Proposal Construction Principles

- Keep the following points in mind as you construct your proposal:
 1. The proposal is the only thing that stands between you and the reviewers (decision makers). It must clearly present everything they need to know to make the decision and everything you would like them to take into account.
 - A proposal that is **careless in presentation**, that **does not conform to guidelines**, or that is **overly casual** tells the reviewer that this is how work will be carried out. Similarly, **a short incomplete response** is a missed opportunity to make the most persuasive case possible.
 2. The proposal will always be **evaluated competitively with others**. To be adequate or even "good" is insufficient. For an application to be successful it must be better than the others to which it will be compared.
 3. Proposals will undergo an evaluation based on very similar basic criteria, regardless? Does it match the requested topic? Is there a realistic prospect that it will be carried out successfully? Is the applicant qualified, and knowledgeable in the topic area of research? Is the proposed budget realistic?

- **By this time one should have a:**
 - good idea about what one wants to accomplish and what approach to take.
 - basic understanding of what are missing and where to obtain what is needed.
- In other words, **one should be ready to start writing a proposal that is based on a well-conceived research plan.**
- The preceding effort will save time and money throughout the proposal process.
- It is essential that one allows sufficient time to prepare any proposal. Plan to write several drafts.

Looking at the *Grant Announcement*

- Identify the Grant program or programs that you want to submit your proposal to.
- Read the *Grant Announcement* guidelines carefully
- The *Grant Announcement* clearly spells out requirements, including format requirements. All parts of the proposal should **conform to the requirements**, i.e. target dates, font size, page limits, program objectives, budget limits, matching funds, etc.
- In some cases, *Grant Announcements* have specific requirements that differ from the general requirements.

General Components of a Proposal

- Project Summary- (this should be written last)
- Introduction and literature review
- Objectives
- Materials and Methods
- Project Design and Work Plan
- Work Distribution and Organisation
- Budget
- References
- Curriculum Vitas
- Appendices

Before you begin, make certain you have gathered all the information and reference material needed to complete all aspects covered under each area.

1. Continue to **follow the specific format**. Use the exact headings and subheadings as indicated in the requirements.
2. Use **simple, direct concise language**. Keep it **factual, well defined, application-oriented, and persuasive**.
3. Create a document that can be **understood on the first reading**. **Eliminate any statement that requires outside information or conjecture on the part of the reviewer(s) to complete or understand**.

Writing the Proposal

A good proposal must be readable, well-organized, grammatically correct, and understandable.

- The proposal should be explicit in **how the research will make an improvement**. It must contain specifics including details of experiments and/or applications, both to show that planning has been done and to help reviewers understand why the particular application is proposed.
- The proposal should be **specific about the proposed activities**.
- By careful writing one should describe, in the limited space available, enough about the project to **give the reviewers a clear idea of exactly what one plans to do and why the plan is a good one**.

PREPARING TO WRITE

Remember that no amount of skill in writing can disguise research that is poorly designed.

- As you prepare to write, always bear in mind that the most important component of your proposal is its **scientific and technical quality**.
- No matter how well organized, a proposal that reflects poor methods is most often rejected.

The proposal must be written in sufficient detail to allow reviewers to understand:

- what the project hopes to accomplish;
- if the project personnel have the necessary expertise to accomplish the goals and objectives;
- the potential of the project to improve knowledge
- the national impact and cost effectiveness of the project; and
- evaluation and dissemination plans.

Clarity

It is very difficult to write clearly and concisely yet cover the topic thoroughly. Consider the following:

- 1. Be Clear:** This is the first priority or one loses audience. **Quantity is not a criterion; relevance is.**
- 2. Be Concise:** This is often difficult when trying to be comprehensive or as thorough as possible. Make sure that when the evaluator reads the proposal the following words don't come to mind: superfluous, verbose, redundant, repetitive, and rambling. During the proposal draft review process eliminate information and details the reader will not need or care about.
- 3. Be Thorough:** Think about being thorough from beginning to end. Do not provide bare, unsupported statements.

**The proposal build from a
good idea, does it have a plan
for
implementing the idea, and
does it communicate both the
idea and plan effectively?**

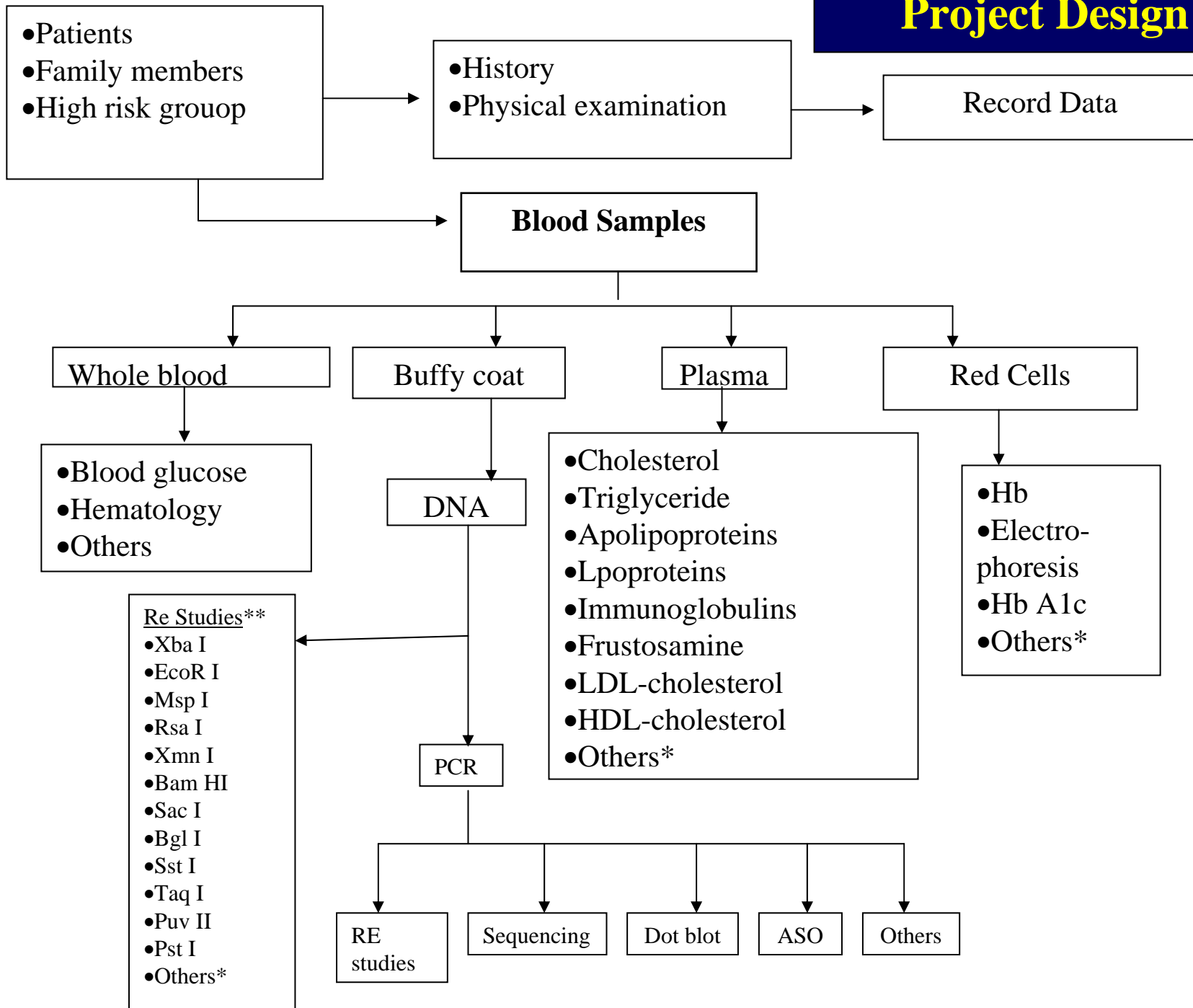
Generic Writing Pointers

- The **primary** objective in writing a proposal is to communicate—not to impress. Consider the following guidelines when writing to communicate:
 1. Use 1 to 2 syllable words,
 2. Use familiar words that are easily understood by reviewers,
 3. Use 1 to 2 phrases per sentence, and
 4. Use 3 to 8 sentences per paragraph.
- Through the writing talent one has the ability to make it as easy as possible for the reviewer to understand and evaluate the proposal.

Work Plan / Experimental Design

- **This proposal must be comprehensive, detailing proposed activities and how they are to be accomplished.**
 - 1. Have you clearly stated the technical objectives that this study will attempt to accomplish?**
 - 2. What questions will be answered through the accomplishment of each technical objective?**
 - 3. Are the steps to the plan clearly linked to the objectives of the research?**
 - 4. Is the plan detailed enough?**
 - 5. Is the plan achievable? In terms of:**
 - a. Actual work to be accomplished,**
 - b. Internal equipment availability, and**
 - c. Material delivery schedules, etc.**
 - 6. Is the finished work plan presented in chronological order?**
 - 7. Have you linked the work to be accomplished in Phase I to a foundation of work for Phase II?**
 - 8. This may require special attention.**

Project Design



Work Plan

Stage	Time required	Work to be conducted
Stage One	0 – 0.5 years	<ul style="list-style-type: none">- Employ technical and secretarial staff.- Purchase of equipment, chemicals, probes, primers.- Literature survey.- Initiation of studies or DNA samples already available.- Standardization of techniques.- Preparation of forms for collection of history, clinical and laboratory data.- Sample collection from patients.
Stage Two	0.5 – 2.5 years	<ul style="list-style-type: none">- Continuation of studies on available DNA samples.- Selection of patients from outpatient and inpatient clinics of the clinical coinvestigators.- Collection of data:(- History, - Physical examination, - Family history)- Selection of controls- Collection of haematological, biochemical data- DNA analysis- Manuscript preparation
Stage Three	2.5 – 3.0 years	<ul style="list-style-type: none">- Completion of initial project studies.- Data analysis.- Reporting and suggestions for future.

Facilities

Although this part of the proposal may not weigh as heavily as other sections in the evaluation criteria, it is ones responsibility to convince the reviewers that one possesses (or has access to) facilities and equipment necessary to complete the stated objectives. The following questions will help.

1. Are facilities appropriate for the work proposed? Are they available?
2. If outside facilities and/or equipment is required:
 - a. Why are they needed?
 - b. Are you renting the facility or just time on the equipment?
 - c. Can they meet your time schedule?
 - d. Have you obtained letters of agreement and/or quotes and agreements to perform?
3. Based on what one has written, will the reviewer completely understand where all the work will be accomplished?

Budget

In regards to budget preparation “be realistic and follow the instructions.”

1. Is the proposed budget realistic?
2. Does the budget explanation provide sufficient detail?

- **Including Budget Information**
 - The budget request should be realistic for the project and reflect the goals of the project.
 - Budget information should be complete and unambiguous. Carefully review your budget to ensure that ineligible items do not appear in the budget and that adequate attention has been given to cost sharing. Consult the *Grant Announcement* for eligible and ineligible items. Most reviewers look carefully at the proposed budgets to find evidence of careful reflection and realistic project planning.
 - Cost of the project must be realistic.

- **Schedule proposal writing and information gathering activities over a reasonable time and carefully manage the schedule.**
- **Typically a final version of a proposal will have gone through several drafts and revisions. Don't plan on writing a final version in a first draft.**
- **Invest time running a pilot program and preparing preliminary versions of curricular materials prior to the actual writing of the proposal.**
- **The proposal should be written so that, if funded, it can serve as a blueprint for executing the plan.**

Final Budget Tips

1. Always double-check your budget figures.
2. Don't save the budget preparation until last.
3. Understand budget evaluation criteria.
4. Be reasonable.
5. Duplicate forms.
6. Relate each budget item to the rest of the proposal.
7. If in doubt, explain.

Writing the Credentials of the PI and Other Staff

- When writing up the credentials of research team for the grant proposal, each biographical sketch should be written with the proposal in mind and should display the unique background of the principal investigator(s) which will be valuable in working on the proposed project.
- Be sure that the roles of all personnel, especially the principal investigators, are described in the proposal itself.

Personnel

1. Pay close attention to the personal qualifications of the PI, as well as other key personnel? Focus on directly related education, experience, publications, or any other information that verifies their expertise.
2. Have the personnel been clearly linked to the work to be accomplished?
3. Follow all the guidelines for the personnel related sections. Including:
 - a. Complete biographical sketches,
 - b. Details required in the biographical sketches, and
 - c. Correct dates, etc.
4. If using a consultant(s):
 - a. Do they have the needed credentials?
 - b. What will they be required to do?
 - c. Can their services be retained for a fee?
 - d. Have letters of agreement been obtained? Does the letter clearly state their agreement to perform specific tasks and include agreed upon hours and a rate per hour?

Evaluation and Dissemination Information

- A good evaluation plan appropriate to the scale of the project will provide information as the project is developing and will determine how effectively the project has achieved its goals. The effects of formative evaluation should be described. Also include how you intend to evaluate the final project and how you will determine whether this project met your scientific expectations.
- To collect and analyze data on the project's impact.
- Explain in detail how you will disseminate information on the success and content of your project to others

Letters of Commitment

- Include letters of commitment from department chair and other appropriate administrators.
- If the project involves other people or groups not on institution, include letters of commitment and support from appropriate individuals.

EDITING AND REWRITING

- Produce several drafts.
- Look at each draft as if it was the final draft.
- Good grammar and good spelling are essential.
- When reviewing a draft look for passages in the text that could be illustrated by graphs, charts, timetable, etc.

WRITING THE ABSTRACT

- Wait until the proposal in its final form to draft the abstract.
- The abstract is a very important section of the proposal.
- It is often considered first and last chance to win.
- It's the first text the reviewer reads and often the last text read before the funding decision.

Be sure to follow guidelines about space and/or word limitations for the abstract.

Good abstracts have two important qualities:

1. An abstract should inform, not describe. It is not the introduction to your proposal. It should tell what the problem is and outline your proposed solution.
2. An abstract should touch on each main element in the proposal.

Since abstract must be short and concise, it may be written like a formula:

- A sentence on the problem.
- A sentence on why the problem is important.
- A sentence on your proposed solution.
- A sentence or two on your methodology.
- A sentence on your expected results.
- A sentence on the qualifications of your researchers.
- A sentence on the commercial viability.

- Before drafting the abstract, review once again the proposal, core statements and work plan.
- In writing the abstract, weave these together with the specific information outlined by the formula above.

Avoid Grayness

What is Grayness & How it can be avoided

- Grayness refers to both appearance and expression.
- A page that does not guide the eye to quickly locate information is a "gray" page.
- If the writer does not provide a good structure, reviewers will have to exert themselves to both provide that missing structure and extract the meaning.
- The presence of grayness is an important factor in losing readers.
- An important factor to remember is to choose a readable type size.

Allow time for the 4 r's:

- review
- rethink
- revise
- redo

FINAL WORDS OF ADVICE

- **First**, the components of a proposal are just that: pieces. In order to convey the message, they must be formed into a cohesive document. Be succinct, write clearly, and yet remain thorough.
- **Second**, remember, the submission of the proposal is just as important as proposal preparation. What to send—how to package it—how many copies to send—where to send it—the deadline (postmarked or received)—are all critical pieces of information you cannot afford to overlook.
- **Third**, stick to a time schedule during the development of the proposal. Using a preparation milestone chart can prove very useful to even the experienced writer.
- **Fourth**, place this guide in a binder and refer to it often during the entire writing process.

FORMS

- A number of the financing organisation require original forms be used for each proposal you submit.
- Check all instructions very carefully.
- Treat the forms like the text of the proposal, draft several copies prior to completing the final.
- Give plenty of time, don't assume that the forms can be easily and quickly filled out the night before the proposal is due. Fill out each required form completely.
- Do not forget to sign and date in all required places.

- **Step 3 - Before Sending Your Proposal to**

Learning More About the Review Process

- Getting Advice

- If possible, have someone not connected with the proposal read and comment on a draft of proposal.

Before Finishing the Proposal

- When a checklist is provided in the *Program Announcement*, use it to ensure that all needed information, signatures, and/or administrative details are included.
- Look again at the goals and objectives and at your written plans and procedures for achieving the goals. Check to see that the goals are well-developed and realistic and that your plans are innovative and appropriate.
- Consider using graphics to make your point stronger and clearer.
- A time line to show when different components of your project are to take place can be particularly effective.
- Include a table of contents. This makes it easy for reviewers to locate important sections of your proposal.

Little Things That Can Make a Difference

- Use a spell checker before submitting the proposal.
- Proofread carefully.
- Be sure to follow the directions given in the Grant *Program Announcement*. In particular, follow any specific requirements such as page limitations.
- In general avoid abbreviations. For example, use laboratory, not lab and mathematics, not math.
- The first time you use an acronym, write out what it stands for and put the acronym in parentheses. For example, Polymerase Chain Reaction (PCR).
- Make sure all your references are correct.

Step 4 - Awards and Declinations

- If The Grant is Awarded.
 - If the proposal is successful, make the best possible use of the funds awarded.
- If Your Proposal is Not Funded
 - If the proposal is not funded, consider the reviews of the panel and the comments and submitted.
- A Final Note
 - It is in our best interest to have your proposal be of the highest quality.

Quality

The quality of a proposal is quite often the deciding factor between two proposals that are otherwise equal in scientific and technical merit.

- Quality centers around a few distinct "rules of thumb" that help to improve your chances of being successful in proposal writing.
 1. **Respond to Requirements:** Respond fully and precisely to all the requirements
 2. **Follow the Provided Format:** Don't vary from or elaborate on the provided outline or format.
 3. **Be Positive and Specific:** Be honest and to the point.
 4. **Make the Format Pleasing:** Within the required format, use spacing, emphasis on key points, graphs, tables, and diagrams.
 5. **Make the Narrative Flow:** Write the proposal as you would tell a story, but without belaboring the obvious. Narrative should flow from general to specific, from past to present to future.
 6. **Address the Essentials:** Address each required point in the proposal, providing more detail to the areas that are worth more in the evaluation scheme. Don't elaborate too much, providing unnecessary information can lose the reader.
 7. **Avoid Mechanical Problems:** In addition to format issues and narrative flow, mechanical errors will get you in trouble. You must make a special attempt to check for misspelled words, shaky grammar, and faulty punctuation.