RESEARCH AND SPONSORED PROJECTS
UNIVERSITY OF MICHIGAN

The Proposal Writer's Guide: Overview

I. **Overview**
II. **The Parts of a Proposal**
  A. **Research Proposals**
    1. **Cover Letter**
    2. **Title Page**
    3. **Abstract or Summary**
    4. **Table of Contents**
    5. **Background or Significance**
    6. **Project Purpose**
    7. **Plan or Approach**
    8. **References**
    9. **Institutional Resources**
    10. **Budget**
    11. **Appendices**
    12. **Biosketches**
  B. **Academic Program Proposals**
III. **Private Foundation Inquiries**
IV. **Organizing Your Writing Approach**
V. **Why Proposals are Rejected**

Introduction

Writing a proposal for a sponsored activity such as a research project or a curriculum development program is a problem of persuasion. It is well to assume that your reader is a busy, impatient, skeptical person who has no reason to give your proposal special consideration and who is faced with many more requests than he can grant, or even read thoroughly. Such a reader wants to find out quickly and easily the answers to these questions.

- What do you want to do, how much will it cost, and how much time will it take?
- How does the proposed project relate to the sponsor's interests?
- What difference will the project make to: your students, your field, your patients, the state, the nation, the world, or whatever the appropriate categories are?
- What has already been done in the area of your project?
- How do you plan to do it?
- How will the results be evaluated or analyzed?
- Why should you, rather than someone else, do this project?

These questions will be answered in different ways and receive different emphases depending on the nature of the proposed project and on the agency to which the proposal is being submitted. Most agencies provide detailed instructions or guidelines concerning the preparation of proposals (and, in some cases, forms on which proposals are to be uploaded); obviously, such guidelines should be studied carefully before you begin writing the draft.

Bottom line: The principal investigator needs to keep in mind that a Grant Proposal is as much a marketing document as an intellectual document.

Preliminary Steps

You will benefit by consulting a few key individuals at an early stage in the planning of the proposal.

1. The Sponsor's Program Officer (PO). Regardless of the funding agency, it is advisable (and sometimes required) to contact the program officer for the purposes of introducing yourself and your work. Let him or her know that you plan to apply, and seek their input on the program relevance of your proposed work. The PO also can discuss the latest agency guidelines, and can explain funding peculiarities that might affect your preparation of the proposal, such as the review process. In most cases, email the individual with a brief message introducing yourself and your project. Append a 1-2 page summary of your work and request feedback regarding the fit with the sponsor's funding priorities; be sure that there is an adequate amount of time for the PO to respond before the deadline. Request a follow-up phone call and leave your contact information. If you have not heard from the PO in a week or so, follow up with a phone call.

2. Your department research administrator. This person will greatly appreciate advanced notice of your intent to submit as he or she will likely help you prepare the budget and application for submission, and will oversee the internal routing process of the Proposal Approval Form. The research administrator may also refer you to others on campus who may assist in issues such as human subjects review, the use of animals, potential conflicts of interest, off-campus work, subcontracting, space rental, staff additions, consultants, equipment purchase, biological hazards, proprietary material, cost sharing, and many other matters.

3. Your Chair/Dean. The department chair, whom you will eventually ask to approve the proposal and thereby endorse your plans for personnel and facility commitments, should be informed of your intentions and especially of any aspect of the proposed project that might conceivably affect departmental administration or your departmental duties. Early discussion of potential problems will smooth the way for the proposal. Several schools and colleges have associate deans with special responsibilities for sponsored programs. These persons can provide valuable help and advice both in substantive and administrative matters. They also may be able to suggest key collaborators or resources, and perhaps will be willing to review a draft before submission.

Research Proposals - Parts of a Proposal

Proposals for sponsored activities generally follow a similar format, although there are variations depending upon the sponsor and whether the PI is seeking support for a research grant, a training grant, or a conference or curriculum development project. Be sure to follow the outline contained in the sponsor's guidelines. The following generic outline is generally focused on the components of a *research* proposal. (The follow-on section describes format variations required for other kinds of academic programs.)

Proposal Writers Guide Research Proposals - Research Proposals

Typical parts of a research proposal are outlined below. Note that examples are pulled from databases of awards from either federal agencies (i.e., NSF and NIH) or foundations.

1. Cover Letter
2. Title Page
3. Abstract or Summary
4. Table of Contents
5. Background or Significance
6. Project Purpose
7. Plan or Approach
8. References
9. Institutional Resources
10. Budget
11. Appendices
12. Biosketches

Research Proposals - Cover Letter

This (usually optional) letter may be used to convey information that is pertinent to the review of the proposal. Make sure you identify your name, the University of Michigan, project title, RFP or and specific funding mechanism if any. Depending on sponsor's regulations, this letter may be used to request a reviewer or a specific study section with special expertise in your field, or to identify conflicts with potential reviewers. Sometimes this letter is used to explain special circumstances, e.g., budget outside of limits, missed deadline, unique subawards, request to send in delayed preliminary data results before review date. State if you have attached any special approval documentation pertaining to any of the above.

Proposal Writers Guide - Research Proposals - Title Page

Most sponsoring agencies specify the format for the title page, and some provide special forms to summarize basic administrative and fiscal data for the project.

Generally, the principal investigator (PI), his or her department head, and an official representing the University sign the title page.

A good **title** is usually a compromise between conciseness and explicitness. One good way to cut the length of titles is to avoid words that add nothing to a reader's understanding, such as "Studies on...," "Investigations...," or "Research on Some Problems in...." The title needs to: match interests of reviewers; use appropriate key words; be specific to the work to be accomplished; and be long enough to distinguish it from other studies in the field, but not too long to bore the reader. Examples of good titles are: "Applications of the motivic Becker-Gottlieb transfer," "Advancing engineering education through virtual communities of practice," "Structural controls of functional receptor and antibody binding to viral capsids," "Active tectonics of the Africa-Eurasia zone of plate interaction in the Western Mediterranean."

Research Proposals - Abstract or Summary

Every proposal should have an abstract. The abstract forms the reader's initial impression of the work, and therefore plays a big role on whether the application is funded. The abstract speaks for the proposal when it is separated from it, provides the reader with his or her first impression of the request, and, by acting as a summary, frequently provides the reader their last impression. Some reviewers read only the abstract, e.g., a foundation board of directors' member who votes on final funding decisions. Thus it is the most important single element in the proposal.

To present the essential meaning of the proposal, the abstract should summarize the significance (need) of the work, the hypothesis and major objectives of the project, the procedures to be followed to accomplish the objectives, and the potential impact of the work. Though it appears first, the abstract should be edited last, as a concise summary of the proposal. Length depends on sponsor's guidelines (from ½ to 2 pages).

Agencies often use the abstract verbatim to disseminate award information.

Research Proposals - Table of Contents

Whether to include a ToC depends on (a) the direction in the guidelines, and (b) the complexity and length of the proposal.

Very brief proposals with few sections ordinarily do not need a table of contents; the guiding consideration in this is the reader's convenience.

Long and detailed proposals may require, in addition to a table of contents, a list of illustrations (or figures) and a list of tables.

If all of these are included, they should follow the order mentioned, and each should be numbered with lower-case Roman numerals. If they are brief, more than one can be put on a single page.

Research Proposals - Background or Significance

This section will be labeled differently depending on the guidelines. It addresses why the proposed work is important in the field, and answers the question, "so what?" In this section, provide the status quo of the relevant work field and identify a gap in knowledge or activities that must be filled to move the field forward. Sufficient details should be given in this discussion (1) to make clear what the research problem is and exactly what has been accomplished; (2) to give evidence of your own competence in the field; and (3) to show why the previous work needs to be continued.

Literature reviews should be selective and critical. Reviewers do not want to read through a voluminous working bibliography; they want to know the pertinent works and your evaluation of them. Discussions of work done by others should therefore lead the reader to a clear impression of how you will be building upon what has already been done and how your work differs from theirs. It is important to establish what is original in your approach (innovative), what circumstances have changed since related work was done, or what is unique about the time and place of the proposed research. Note: guidelines may require a separate section for innovation or for transformative potential of the work.

This is one place where a PI may include their own work (and that of their research team) related or preliminary to the proposed study. Preliminary data or pilot studies must relate directly to the hypothesis or aims, and show the reviewer that the aims are feasible and the team has the required experience and skills. Data may or may not be published, but published data have more credibility.

Research Proposals - Project Purpose

This section describes what will be accomplished or tested in the project.

Research proposals usually are focused on a central hypothesis. A good research grant hypothesis is a testable, focused, clear, declarative statement of relationships between variables based on previous observations. Sometimes research questions are used in place of hypotheses, especially if work is in early stages. And sometimes working hypotheses (per aim) are used in place of a central hypothesis. This decision is often based on common practice in the discipline or field.

The objectives (or aims) should focus on *outcome* as opposed to *process*. For example, the outcome of the work is "*To identify the candidate allele;*" while the process of getting there includes "*to run several trials on samples.*" There should be 2 to 4 outcome objectives per proposal. When writing aims, use active, measurable terms, e.g., *to identify*, *to characterize* vs. *to study.*

Research Proposals - Plan or Approach

This section includes a comprehensive explanation of the proposed research, and is addressed to other specialists in your field (not to laymen). The section is the heart of the proposal and is the primary concern of the technical reviewers. To make it clear and easy to follow, you may need several subsections tailored to your work. Research design is a large subject and cannot be covered here, but a few reminders concerning frequently mishandled aspects of proposals may be helpful.

1. Be realistic in designing the program of work. Overly optimistic notions of what the project can accomplish in one, two, or three years, or of its effects on the world, will only detract from the proposal's chances of being approved. Afrequent comment made by reviewers to new investigators is "the work is too ambitious." Research plans should be scaled down to a more specific and manageable project that will permit the approach to be evaluated and, if successful, will form a sound basis for further work. In other words, your proposal should distinguish clearly between long-range research goals and the short-range objectives (2 – 4) for which funding is being sought.

2. If your first year must be spent developing an analytical method or laying groundwork, spell that out as Phase 1. Then at the end of the year you will be able to report that you have accomplished something and are ready to undertake Phase 2.

3. Be clear about the focus of the research. Be explicit about the hypotheses the research method rests upon, and restate the aims from the Purpose section.

4. Be as detailed as possible about the schedule of the proposed work. When will the first step be completed?When can subsequent steps be started? What must be done before what else, and what can be done at the same time? A Timeline detailing the projected sequence and interrelationship of major tasks often gives the sponsor assurance that the investigator is capable of careful step-by-step planning, and that the work will be accomplished in an efficient and feasible manner.

5. If you are proposing new, risky or unorthodox methods, be sure to include adequate justification, e.g., references in literature about success of these methods in similar studies.

6. Be specific about the means of evaluating the data, conducting the analysis, or determining the conclusions. Try to imagine the questions or objections of a hostile critic and show that the research plan anticipates them. This is a good reason to have your proposal pre-reviewed by peers in your field before sending to the sponsor.

7. Be certain that the connection between the research objectives and the research method is evident. If a reviewer fails to see this connection, s/he will probably not give your proposal any further consideration.

Research Proposals - References

If a list of references is to be included, it is placed at the end of the text. This section typically is not counted in the page limitation of the Research Description.

In the text, references to the list can be made in various ways; a simple way is to use a raised number at the appropriate place, like this.1 Such numbers should be placed outside any contiguous marks of punctuation. If you have space, you might consider the American Psychological Association style because the reader does not have to refer to the reference list to see authors and data of publication, e.g., (Wiseguy, 2014).

The style of the bibliographical item itself depends on the disciplinary field. The main consideration is consistency; whatever style is chosen should be followed scrupulously throughout. In most cases in bibliography, you will not use “et al” but will include full names of authors.

Remember, NSF applications need to include specific activities in response to their criterion of Broader Impacts in several sections (Summary, Recent NSF Support, Project Description).

Research Proposals - Institutional Resources

The nature of this section depends on your project, but in general this section details the resources available to the proposed project. It underscores why the sponsor should wish to choose this University and this investigator(s) for this particular research. Some relevant points may be the institution's demonstrated competence in the pertinent research area, its abundance of experts in related areas that may benefit the project, its supportive services that will directly benefit the project, and its unique or unusual research facilities or instruments available to the project.

When collaborating with another institution, that partner also will submit an Institutional Resources section.

Research Proposals - Budget

The budget is a line item (tabular) representation of the expenses associated with the proposal project. The Budget Justification contains more in depth detail of the costs behind the line items, and sometimes explains the use of the funds where not evident. Examples include the need for consultants, or the unavailability within the University of an item of equipment proposed for purchase. Foreign travel should be specifically detailed and justified, and not combined with domestic travel. The need to travel to professional meetings should be tied to the proposed project, if possible. Refer to **sample budget**.

Cost estimates need to be as accurate as possible to cover the expenses proposed in the project. Reviewers will note both over- and under-estimations.

The budget should be developed with your departmental research administrator, in consultation with the appropriate ORSP project representative as needed. Sponsors customarily specify how budgets should be presented and what costs are allowable. The overview given here is for preliminary guidance only.

Typical divisions of the line item (tabular) budget are personnel, equipment, supplies, services, travel, and indirect costs (IDC). Other categories can be added as needed. The budget should make clear how the totals for each category of expenses are reached. Salary information, for example, often needs to be specified in detail: principal investigator (.5 FTE for 3 months at $80,000 [9-month appointment]) = $13,333. Make clear if salary totals involve two different rates (e.g., because of an anticipated increase in salary during the budget period).

The category of Personnel includes not only the base salary or wage for each person on the project, but also (listed separately) the percentage added for staff benefits. The current figure used for approximately the average cost of staff benefits is 30% of the total salaries and wages. Project representatives should be consulted on the calculation of staff benefits, because the rate may vary significantly depending on the kinds of personnel involved and the selected benefit option. A table is available from ORSP.

Graduate Student Research Assistants, who are to be employed on research projects for more than 1/2 time, may have part of their tuition costs covered by their unit. The remaining tuition costs must be included as a line item in the budget to the sponsor.

Indirect costs (IDC) are shown as a separate category, usually as the last item before the grand total. Indirect costs are figured as a fixed percentage of the total direct costs (modified by various exceptions). For federally funded grants, some items are excluded from IDC, e.g., equipment (over $5,000), graduate research assistant tuition, and the balance of subcontracts over $25,000.

Because indirect cost percentages change after periodic negotiations with the federal government, PIs should consult their departmental research administrator or an ORSP project representative before calculating this part of their budget. Refer here for the current **indirect cost (IDC) rates**.

If cost sharing is required (mandated) by the sponsor, please check with your departmental research administrator for how to show that in the budget. This must be approved by your Chair or Dean.

To call attention to the variety of expenses that might arise in the conduct of a research project, a **checklist*** of possible budget items is included here. This checklist suggests many of the expenses that might be appropriate to your budget, but consultation with the ORSP project representative is important. S/he can help ensure (1) that the budget has not omitted appropriate elements of cost, such as service charges for the use of certain University facilities (for example, surveys conducted by the Institute for Social Research); (2) that any estimates for construction, alterations, or equipment installation have been properly obtained and recorded; (3) that costs are not duplicated between the direct and indirect cost categories; (4) that the budget complies with any cost-sharing requirements of the sponsor; (5) that provisions are made for the escalation of costs as may be appropriate; and (6) that costs in all categories are realistically estimated.

**Revised checklist*

For additional help and samples, see **Budget Planning & Preparation**

Checklist for Proposal Budget Items Directly Tied to the Project:

A. Salaries and Wages

1. Academic personnel
2. Research assistants
3. Stipends (training grants only)
4. Consultants
5 Interviewers
6. Computer programmer
7. Data managers or analysts
8. Administrators
10. Editorial assistants
11. Technicians
12. Study/clinical coordinators
13. Hourly personnel
14. Staff benefits
15. Salary increases in proposals that extend into a new year, e.g., Cost of Living increases
16. Vacation accrual and/or use

B. Equipment

1. Fixed equipment
2. Movable equipment
3. Office equipment
4. Equipment installation

C. Materials and Supplies

1. Office supplies specifically for project
2. Communications
3. Test materials or samples
4. Questionnaire forms
5. Data access
6. Animals
7. Animal care
8. Laboratory supplies
9. Glassware
10. Chemicals
11. Electronic supplies
12. Report materials and supplies

D. Travel

1. Professional conferences
2. Field work
3. Sponsor meetings
4. Travel for consultation
5. Consultants' travel
6. Mileage for research participants
7. Subsistence
8. Automobile rental
9. Aircraft rental
10. Ship rental

E. Services

1. Computer use/data storage
2. Duplication services (reports, etc.)
3. Publication costs
4. Photographic/graphic services
5. Service contracts
6. ISR services (e.g., surveys)
7. Data analysis

F. Other

1. Space rental
2. Alterations and renovations
3. Purchase of data, periodicals, books
4. Subjects/Research participants
5. Patient reimbursement
6. Tuition and fees
7. Hospitalization
8. Subcontracts

Research Proposals - Appendices

Some writers are prone to append peripheral documents of various kinds to their proposals on the theory that the bulk will buttress their case. Most sponsors restrict what can be appended, if anything. If not restricted, remember that reviewers almost never read such appendices, and may resent "the padding." The best rule of thumb is: When in doubt, leave it out.

Appendices are occasionally used for letters of endorsement or collaboration, and reprints of relevant articles if they are not available electronically. Other uses may be data tables, surveys, questionnaires, data collection instruments, clinical protocols, and informed consent documents, as allowed by the sponsor.

If two or more appendices are included in a proposal, they should be designated Appendix A, Appendix B, etc.

Research Proposals - Biosketches

The Biosketch in a grant proposal gives the investigators the opportunity to highlight their expertise and experience *related to the proposal work*. The format and length may be specified in the guidelines. Education should include not only degrees, but additional courses or activities that underscore your skills in a relevant area. Under professional positions, be sure to include post doc experiences. Publications reflect your productivity, work record, and collegiality; the most valuable publications are full articles in peer review journals where the subject is relevant to the proposed work and the investigator is a primary contributor; you can include papers accepted for publication by a journal. Remember, you may be able to annotate individual publications to show how this relates to the proposed work.

If given the option to write a personal statement as part of the Biosketch, compose it thoughtfully. Describe not only your background and qualifications to conduct the proposed work (e.g., post doc work, experience in essential methodology), but your prior work with your co-investigators.

Academic Program Proposals

It may be that your need is not for a research grant, but for outside sponsorship of an academic program involving a new curriculum, a conference, a summer seminar, pipeline activities, or training. If so, once again your best proposal preparation is to carefully consult guidelines that the sponsoring agency provides, and communicate with the program officer (as above). In the event that guidelines are not available, crucial elements include:

Statement of Need for the Program: Be sure to describe unmet need in the field and gap in the current programing, and why it is important to fill the gap. Cite statistics and demographics as appropriate.

Objectives: Specify the intended outcomes such as developing a curriculum, recruiting participation in a field, synergizing new ideas, or offering education or skill training.

Program description: This section lists the courses, activities or instructional sessions to be offered; the interrelationship of parts; involvement of stakeholders if appropriate; and the program leading to certification or a degree. It discusses the students or participants to be selected and served by the program, as well as plans for faculty retreats, negotiation with cooperating institutions, released time to write instructional materials, and so on. As always, a Timeline is a good idea.

Most sponsors want to see a plan for evaluating the outcome of the activities, e.g., academic or career tracking, publications, participation numbers, new databases, course evaluations.

Before concluding with the **Institutional Resources, Personnel**, and **Budget** sections, special attention should be given to a section entitled **Institutional Commitment**. Here the agreements made by various departments and cooperating institutions are clarified, and the willingness of the home institution to carry on the program once it has proven itself is certified. This section is crucial to the success of curriculum development programs because, in contrast to research programs, they have a profound impact on the host institution. Funding agencies need to be reassured that their funds will not be wasted by an institution that has only responded to a funding opportunity without reflecting soberly upon the long-range commitments implied.

Private Foundation Inquiries

Proposals to foundations have a better chance of succeeding if they are preceded by an informal contact. This contact is usually a brief (not more than two pages) letter outlining the proposed project, suggesting why the foundation should be interested in it, and requesting an appointment to discuss it in further detail. Such a letter permits an investigator to make inquiries to several foundations at once and gives an interested foundation the chance to offer suggestions before receiving the formal proposal. In many cases, the letter of inquiry is required for the purposes of either preparing for reviews or screening out non-responsive ideas. (Please note that it is still acceptable to contact the program officer before you submit your letter of inquiry.)

Most foundations have specific areas of interest for which they award funds. It is essential that the grant seeker identify those foundations whose interests match the proposed project. Seldom will a foundation fund a project outside of its stated field of interest.

The initial letter of inquiry should demonstrate that the investigator is acquainted with the work and purposes of the particular foundation being approached and should point out a clear connection between these and the proposed project. A letter so generally phrased that it could be a form letter is almost certain to be disregarded. An effective letter will discuss the significance or uniqueness of the project: Who will benefit? Who cares about the results? What difference will it make if the project is not funded? It will give enough indication of step-by-step planning to show that the project has been thought through and that pitfalls have been anticipated. It will demonstrate the writer's grasp of the subject and his or her credentials to undertake the project. It will emphasize at the same time that this is a preliminary inquiry, not a formal proposal, and that the investigator will send further details if the foundation wishes, or, better yet, will visit the foundation to discuss the project in depth. It is unnecessary in the preliminary inquiry to include a detailed budget, although an overall cost estimate should be mentioned.

A good letter, then, might begin something like the following: "Because of the interest the _____ Foundation has shown in _____, I am writing to solicit its support for a project that will _____." This should be followed by a sentence describing the program, the institution, and another one or two concerning the need for and uniqueness of the project.

The body of the letter should consist of three or four paragraphs giving the context or background of the project, its scope and methodology, the time required for its completion, the institutional commitments, and any special capabilities that will ensure the project's success. A separate paragraph might be given to some of the major categories of the proposed budget, including a rounded total direct cost estimate, and mention of any matching fund or cost-sharing arrangements, either in dollars or in-kind contributions.

The last paragraph could be patterned along these lines: "Please let me know if you would like to discuss this idea further or have any questions. My contact information is _____. I look forward to hearing from you soon. Thank you for your consideration."

This letter of inquiry is crucially important, and in preparing it investigators should avail themselves of the advice and help of foundation relations staff in the Schools and Colleges. Contacting U-M Development's Foundation Relations office for help in approaching and coordinating activities with foundations also is a good idea. Contacts with some foundations are controlled by this office and others are coordinated. UM Foundation Relations can provide valuable consultation, e.g., prior funding to the University of Michigan. Refer to their "Foundation Funding for Faculty" at foundations.umich.edu for advice on how to write a letter of inquiry, sample awarded proposals, foundation prospecting, etc.

Detailed information about the foundation's priorities can be gleaned from the foundation's annual reports and from the list of projects that the foundation has actually supported.

Organizing Your Writing Approach

First, start (don't finish) with the sponsor's guidelines. Mark them as you study, noting such things as funder's priorities, eligibility requirements, formatting details, deadline, content idiosyncrasies, review criteria, etc. The guidelines will probably specify certain topics or questions that must be addressed. If possible, use the sponsor's exact phrases as your headings. You may even wish to borrow some of the language of the guidelines if it fits naturally into the framework of your proposal. For example, if the sponsor is looking for a "transdisciplinary" approaches to the problem, you would do well to use that term rather than "interdisciplinary" to describe the same activities.

Second, after you have studied the guidelines, if there are sections that are either too vague or too specific for comfort, check with the department research administrator who may be familiar with this opportunity. This way you will also alert the administrator to your intent to submit and allow them to plan the process. Alternatively, ORSP staff or the sponsor's program staff may be able to provide a clarification.

Third, break the proposal up into small and simple subsections – especially if more than one person will be writing. Give each subsection headings and subheadings (referring again to the guidelines), and write slavishly to this outline. Using subheadings liberally will not only help you organize your material, but will also guide reviewers through your project description?

Fourth, compare your budget and your text to insure that for every cost figure a corresponding activity is mentioned and justified in the text.

Fifth, pay special attention to the abstract. Having rushed through the project description, you will find that careful construction of the abstract will serve both as a summary of what you intend to do and as a check on whether you have omitted any essential topics. Don't just copy and paste your Aims or Significance section. Make this section fresh, informative and engaging; remember that the reviewer may go directly to your Project Description after reading the Abstract, so avoid redundant language.

Sixth, get an internal review from respected colleagues before you send to the funder for review!

Why Proposals are Rejected

Assuming that funds are available, that eligibility is met, and that political considerations are not present, the success of a proposal will depend both on the quality of the project itself and the quality of its presentation in the proposal. Different reviewers, of course, will weigh merits and defects differently, but the following list of short-comings of 605 proposals rejected by the National Institutes of Health is worth pondering. The list is derived from an article by Dr. Ernest M. Allen (Chief of the Division of Research Grants, NIH) that appeared in *Science, Vol. 132* (November 25, 1960), pp. 1532-34. (The percentages given total more than 100 because more than one item may have been cited for a particular proposal.)

A. Problem (Significance) (58%)

1. The problem is not of sufficient importance or is unlikely to produce any new or useful information. (33.1)
2. The proposed research is based on a hypothesis that rests on insufficient evidence, is doubtful, or is unsound.(8.9)
3. The problem is more complex than the investigator appears to realize. (8.1)
4. The problem has only local significance, or is one of production or control, or otherwise fails to fall sufficiently clearly within the general field of health-related research. (4.8)
5. The problem is scientifically premature and warrants, at most, only a pilot study. (3.1)
6. The research as proposed is overly involved, with too many elements under simultaneous investigation. (3.0)
7. The description of the nature of the research and of its significance leaves the proposal nebulous and diffuse and without a clear research aim. (2.6)

B. Approach (73%)

1. The proposed tests, or methods, or scientific procedures are unsuited to the stated objective. (34.7)
2. The description of the approach is too nebulous, diffuse, and lacking in clarity to permit adequate evaluation.(28.8)
3. The overall design of the study has not been carefully thought out. (14.7)
4. The statistical aspects of the approach have not been given sufficient consideration. (8.1)
5. The approach lacks scientific imagination. (7.4)
6. Controls are either inadequately conceived or inadequately described. (6.8)
7. The material the investigator proposes to use is unsuited to the objective of the study or is difficult to obtain. (3.8)
8. The number of observations is unsuitable. (2.5)
9. The equipment contemplated is outmoded or otherwise unsuitable. (1.0)

C. Investigator (55%)

1. The investigator does not have adequate experience or training for this research. (32.6)
2. The investigator appears to be unfamiliar with recent pertinent literature or methods. (13.7)
3. The investigator's previously published work in this field does not inspire confidence. (12.6)
4. The investigator proposes to rely too heavily on insufficiently experienced associates. (5.0)
5. The investigator is spreading himself too thin; he will be more productive if he concentrates on fewer projects. (3.8)
6. The investigator needs more liaisons with colleagues in this field or in collateral fields. (1.7)

D. Other (16%)

1. The requirements for equipment or personnel are unrealistic. (10.1)
2. It appears that other responsibilities would prevent devotion of sufficient time and attention to this research. (3.0)
3. The institutional setting is unfavorable. (2.3)
4. Research grants to the investigator, now in force, are adequate in scope and amount to cover the proposed research. (1.5)

More recent statistics largely support the rankings of proposal sections above. Sally Rockey, Deputy Director for Extramural Research at NIH, published a blog that included a discussion of the correlation between the overall Impact score (essentially what determines whether you get funded), and the five other NIH criteria. Scores for the criterion in order of regression weight were Approach (6.7), followed by Significance (Problem) (3.3), Innovation (1.4), Investigator (1.3), and Environment (-0.1). This means the most important sections of the Project Description are the Approach (work plan) followed by the perceived importance of the work (Significance).

http://nexus.od.nih.gov/all/2011/03/08/overall-impact-and-criterion-scores/

THE FOLLOWING LIST IS COMPOSED OF GRANT PROPOSAL "DOS" AND "DON'TS" THAT ARE IN ADDITION TO THOSE ABOVE:

Do:

- Respond directly to the priorities of the funder and make the connection clear (do not assume the sponsor will change the guidelines just because you have a good idea that falls outside of them).
- Follow the guidelines explicitly both in content and format.
- Positively represent your capabilities, e.g., "We have a strong academic program, but we want to reach more students" vs "We do not have any resources."
- Present evidence that (a) this issue is significant in the field (based on literature review, statistics, stakeholder opinions, etc.), and (b) your project is likely to succeed (e.g., preliminary data or pilot study).
- Make sure you have described adequate expertise on your team and physical resources to do the work.
- Make sure you have an evaluation plan for project proposals (e.g., measure outcomes in the classroom or in the community).
- Use foundation funds to leverage other funding and at minimum show sustainability of the program.
- Publish results of all funding.
- Write clearly, succinctly; follow an outline; and support your assertions with references or data.

Do not:

- Try to do too much in light of your experience and skills, the budget, the time allotted, your access to study participants (e.g., subjects), and your resources. Being "too ambitious" is a common rookie mistake, and is reflected in many of the comments above.
- Duplicate other funded projects.
- Resubmit a proposal without revisions in response to reviewer's comments.
- Submit a large research proposal without a publication history in the area.
- Write a budget that is either too small (skimping) or too large (padding) for the proposal work.

Remember, many of these "don'ts" can be identified by your peer reviewers before you submit. Best wishes!

Updated in 2014 by Christine Black.
Originally produced by Don Thackrey.

Submitted by: January 6, 2016

Copyright © 2017 Regents of the University of Michigan