Grant Support for the Social Sciences from the National Science Foundation

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Programs

- National Science Foundation
  - Research at Undergraduate Institutions (RUI)
  - Major Research Instrumentation (MRI)
  - Research Experiences for Undergraduates (REU)
  - CAREER Program
Review Criteria (NSF)

- Intellectual Merit
- Broader Impact

- Project summary must have a distinct paragraph on each – proposal must clearly address each
- Reviewers must specifically evaluate each (separate sections on reviewer’s form)
Components of all NSF Proposals

- Project Summary (1 page)
- Project Description (15 pages)
- Literature References
- Biographical Sketch (2 pages)
- Budget and Justification
- Current and Pending Support
- Facilities and Equipment
Project Description
(15 pages)

- Results of Prior NSF Support (up to 5 pages)
  - One NSF grant within the past 5 years
    - If directly related to new project – put first in proposal and use most, if not all, of the 5 pages
    - If unrelated to the new project – put last and keep as short as possible – show productivity (money well spent!)
NSF Research Grants (RUI/MRI/REU/Career)

- Culture of different divisions at NSF

- Interdisciplinary projects can provide opportunities as well as challenges
Definition of Undergraduate Research

Undergraduate research is an inquiry or investigation conducted by an undergraduate that makes an original intellectual or creative contribution to the discipline.

- Original work
- Peer-reviewed publications
Components of an RUI Proposal (Renewable)

- Project Summary (1 page)
- Project Description (15 pages)
- Literature References
- Biographical Sketch (2 pages)
- Budget and Justification
- Current and Pending Support
- Facilities and Equipment
- RUI Impact Statement (5 pages)
You must convince reviewers that:

(1) the work is significant – why the work you want to do is important and needs to be done

(2) that you have a well designed experimental plan that is likely to succeed
You can mention aspects of the broader impacts throughout, but remember that there is an RUI impact statement. Make sure that discussions of the impact do not diminish or distract from developing the scientific research in the proposal.
RUI Impact Statement

- A chance to promote your activities
  - Institutional
  - Departmental
  - Individual

- Importance of research to all three

- Success stories within all three

- The approach taken by any or all three to provide students with a better educational experience
Major Research Instrumentation (MRI)

- Funds allocated specifically for PUIs
- No match
- $50 - 500K (or even larger)
- Usually multi-user (especially if larger pieces of equipment)
- Research-based request
- No RUI impact statement
- Original research with expected outcomes
  - Publications/presentations
- External research support
  - Important to have or at least pursue
- Thorough descriptions with appropriate references
- Need research-active users – be very careful about including senior people as co-PIs with no/weak research records
• Show that traveling to another site to use the equipment being requested

• Contrast data from current capabilities with new request to show how new instrument is needed to provide the appropriate information

• Mention use in courses (1-2 pages) – but do not give impression that request is mostly based on curricular uses
Maintenance Plan

- Reviewers must be convinced that the instrument will be well maintained – that the department has the ability to integrate the instrument into its holdings
- Where housed?
- Service contract (?)
- Support staff for maintenance and operation
REU Site Program (Renewable)

- A research program – not curriculum
  - 8-12 students for summer research
  - Publications/external funding – not much room for research descriptions so biographical information and current/pending support crucial
  - Not enough to just involve students in the work
  - Need high quality mentors with strong programs

- Provides added value to research program that is already strong (although may be NSF division-dependent)
Follow-through on Research

- If there is a way to continue the work beyond the summer – will strengthen the request
  - Faculty participants from other institutions
  - Students continue collaboration (may be easier at PUI since half of participants can be from the home campus)
Divisions may have different views on this – especially for PUIs.

Needs to be authentic – should build on existing expertise and not an “invented” theme.

Needs to lead to publication – in chemistry, measuring pollutants in a nearby stream likely won’t be enough.
Student Participants

- PUIs – usually half on-campus, half students from other institutions
- Describe selection process/criteria
- Desire to serve students who would not otherwise have a chance to participate in research
- Desire to serve underrepresented minorities
  - Can’t just say that will have 50% of participants from minority groups without showing established links – perfunctory letters of support are not enough
Professional Development

- Group of students must interact and not simply be dispersed into individual labs
- Orientation
- Meetings/presentations/workshops
- Closing poster session
- Social activities over summer
- Reunion at professional meeting
NSF CAREER Program

- Early faculty (assistant professor without tenure)
- Five-year award ($400K-500K minimum)
- Supports research and educational activities
  - Probably originated to get faculty from R1s to think about education too – but open to PUI faculty as well
- Best if the research and educational activities are integrated – don’t invent “artificial” outreach programs
NIH AREA PROGRAM (R15) (Renewable)

- $300K direct support (1-3 years)
- Match with institute or center within NIH
- Can only submit the same project twice – directly respond to reviewer’s criticisms in a resubmission
- Meritorious research
  - Significant novel question or hypothesis
  - Significant impact
Review Criteria

- Significance – quality of research
- Approach – experimental method
- Innovation – novelty of work
- Investigator – expertise/record in field
- Environment – infrastructure to support work
Components of Proposal

- Specific Aims (1 page)
- Research Strategy (12 pages)
Research Strategy (12 pages)

- Significance
- Innovation
- Approach – divide by each specific aim
  - Introductory paragraph
  - Justification and feasibility
    - Review relevant literature
    - Preliminary studies
  - Research design
  - Expected outcomes
  - Potential problems/Alternative strategies
- Timetable
- Future Directions
Renewal Applications

- Plan for renewal immediately upon receipt of grant
- Fix renewal submission date in your head
- Start short-term projects
- Start long-term projects
Activities to Promote Proposal Writing

- Attend CUR Conferences
  - National Conference (even years)
  - ***Dialogue (every year)

- Attend CUR Institutes
  - Proposal-writing institute
  - How to institutionalize undergraduate research