

Grantsmanship for Students: How to find funding and write a competitive fellowship proposal

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Overview

- Overview of research fellowship funding opportunities and how to find them.
- Focus on the National Science Foundation (NSF) Graduate Research Fellowship Program.
- Focus on the National Institutes of Health (NIH) Training Fellowship Program.
- Focus on undergraduate research opportunities.

Overview, contd.

- Your undergraduate or graduate research agenda.
- Finding a good funding 'fit' and developing a relationship with funding agencies.
- Elements of a fellowship proposal.
- Some tips and 'dos and don'ts' for writing a competitive, successful research proposal.
- The peer review process.

Why should you apply for fellowships?

- Get used to it! Writing competitive proposals is a fundamental facet of present-day scientific research.
- Besides constructive feedback on your research, the application is great preparation for:

- Graduate school applications
- Other award applications
- Job applications
- Writing publications
- Professional connections
- Future grant writing...



Overview: Finding Opportunities



Overview: Sources of Fellowship Funding

- **Federal Agencies**
 - The six Biggest Players are: NIH, DOE, DOD, NSF, NASA and USDA
- National and regional non-profits and Foundations (e.g. American Cancer Society, Autism Speaks, American Foundation for AIDS Research/amfAR, Jack Kent Cooke Foundation);
- Private Companies;
- Professional Associations;
- Institution-based.

Finding Funding Sources...

- **FIRST and FOREMOST:** discuss sources of support for your field with your faculty advisor/mentor(s) .
- **Networking:** ask your peers, colleagues, speakers, and others about their funding sources and knowledge, especially if they work on projects similar to yours, or are in areas that interest you.
- **Scholarly literature:** check acknowledgements in relevant professional literature to identify funders interested in your topic area.
- **Databases:** search funding agency websites and publications and electronic databases for relevant opportunities.

Overview: Types of Graduate Research Fellowships

- **Portable, Individual Fellowships**

- You apply and compete directly for the award; for many you can apply as an undergraduate.
- You usually can take it with you (although some agencies tie it to the institution).
- Examples: NSF Graduate Research Fellowship Program, National Defense Science and Engineering Graduate Fellowship, EPA STAR Fellowships, NIH Training Fellowships.
- See http://www.gradschools.com/article-detail/graduate-fellowships-1676#Federally_Funded_Portable_Fellowships (note: last updated April 2014)

Types of Graduate Fellowships, contd.

- **Institutional Awards**

- Students selected by department, program or faculty.
- May be based at UPR or at another institution; you are often encouraged to go to another institution.
- Examples: NSF NRT, NIH Institutional Research Training Grants (doctoral and post-doc).
- How to find these: Google is your friend. See e.g. http://www.nsf.gov/awards/award_visualization.jsp?org=NSF&pi_ms_id=505015&ProgRefCode=1335&RestrictActive=on&BooleanElement=true&BooleanRef=true&from=fund#

Overview: Undergraduate Fellowships

● Individual Fellowships/Scholarships

- Usually not tied to research, but may be tied to career goals.
- See <http://www.nafadvisors.org/scholarships.php> (some of these are also for graduate students)
- UPR RP College of NS has links to some databases:
<http://natsci.uprrp.edu/index.php?page=for-students-and-postdocs>

● Institutional Fellowships

- NSF Research Experiences for Undergraduates:
<http://www.nsf.gov/crssprgm/reu/>
 - Several at UPR-RP
- NIH MARC U-STAR:
<http://www.nigms.nih.gov/training/marc/pages/PartInstUSTAR.aspx>
 - UPR-RP has a MARC U-STAR in biology and chemistry:
<http://brtcpr.com/marc/index.html> (PI: Reginald Morales).

Undergraduate Research Fellowships, contd.

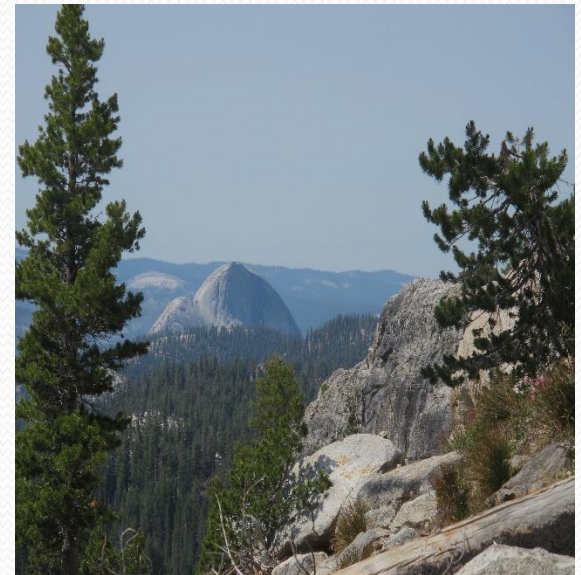
- Undergraduate Research Opportunities are one of the best ways to get experience to help you get into graduate school, and can benefit you personally as well as professionally:

- See e.g. Lopatto, D., Science in Solution (2010).

- Want to come to Yosemite Natl. Park?

Don't forget our UC Merced REU:

http://snri.ucmerced.edu/Yosemite_REU



Overview: Applying for Fellowship Research Funding

- Research and fellowship funding programs are highly competitive.
- Start looking early! Plan on several months **or more** to prepare your proposal.
- Most searches and applications are web-based.
- Application guidelines vary among agencies and opportunities.

Some places to look:

- *GRAPES*: <https://grad.ucla.edu/asis/grapes/search.asp> (No, you don't have to be a Bruin to use it!)
- https://www.nsfgrfp.org/applicants/other_opportunities
- <http://forum.thegradcafe.com/forum> (Grad Café Forum “where something is always brewing”: don't rely on the information without independent verification but nice for online support and social networking. Often good feedback from students who have ‘been there’.) For example, that there is a thread focused specifically on this year's NSF GRFP:
 - <http://forum.thegradcafe.com/topic/57055-nsf-grfp-2014-2015/>
- National Academies Fellowship Page:
http://sites.nationalacademies.org/PGA/Fellowships/PGA_046300

Finding Funding Opportunities: What can you learn from the Agency's Website?

- A description of their research mission, goals, programs.
- Opportunities to sign up for email lists, including announcements of new funding opportunities.
- Budget information, including funding rates for various programs, mechanisms and disciplines.
 - e.g. NIH RePORT: <http://report.nih.gov/>
- Org charts. (helpful to figure out funding areas and who to email or call!)

Finding Funding : Agency Websites, contd.

- Grant Policy Guides.
- Abstracts of funded proposals.
- NIH RePORTER ‘Matchmaker’
 - http://projectreporter.nih.gov/reporter_matchmaker.cfm
- Tips for grantees
 - e.g. NSF “A Guide for Proposal Writing”
<http://www.nsf.gov/pubs/2004/nsf04016/start.htm>
 - NIH You Tube Channel:
<https://www.youtube.com/watch?v=9cNRMscGfHo>

Some programs to look at:

- Ford Foundation Fellowship Program:
<http://sites.nationalacademies.org/pga/fordfellowships/index.htm>
- DoE Computational Science Grad Fellowship:
<http://www.krellinst.org/csgf/>
 - Usually due in January
- National Defense Science and Engineering Graduate Fellowship Program (NDSEG): <http://www.asee.org/ndseg>
 - three years tuition and fees, a monthly stipend, and medical insurance.
 - Includes biosciences and behavioral sciences.
 - Usually due in December.

Focus on the NSF Graduate Research Fellowship Program



FOCUS on the NSF GRFP:

- **National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP)**
- Recognizes and supports outstanding graduate students in the relevant science, technology, engineering, and mathematics (STEM) disciplines pursuing research-based master's and doctoral degrees. Includes the social sciences. Both applicant's proposed research and graduate study must be in a recognized NSF STEM field (See RFA for fields of study); can be interdisciplinary.
- **Program Website:** <http://www.nsfgrfp.org/>
- **Most Recent Call for Applications (now closed):** <http://www.nsf.gov/pubs/2014/nsf14590/nsf14590.htm>
- **Usually released in early to mid-August each year, deadlines in late October, early to mid-November.**

NSF GRFP GOALS (From the RFA)

- To select, recognize, and financially support individuals *early in their careers* with the demonstrated potential to be high achieving scientists and engineers,
- To broaden participation in science and engineering of underrepresented groups, including women, minorities, persons with disabilities, and veterans.
- To help ensure the vitality and diversity of the STEM workforce in the United States.
- **“Applicants are encouraged to visit the NSF web page at <http://www.nsf.gov/> for more information and guidance about current and emerging themes for NSF.”**

NSF GRFP: What's New in 2014-5?

- Due dates were earlier (late October, early November!)
- Changes to postbac eligibility
- Fields of study update, see RFA

- NOTE: in 2014; the old Personal Statement and Past Research was merged to the Personal Statement, Relevant Background, and Future Goals while the old Proposed Research is now the Graduate Research Statement. Careful when reading old applications, and note the **Bottom Line**: Now only two essays (5 pages total) instead of three essays (6 pages)

Overview: NSF GRFP 2014 Awards

- 2000 Awards (same as 2013); success rate about 17% (source: NSF)
- 442 baccalaureate institutions.
- 1069 (53%) women, 382 (19%) underrepresented minority groups.
- See if your friends made the list at:
<https://www.fastlane.nsf.gov/grfp/AwardeeList.do?method=loadAwardeeList>

Overview of the NSF GRFP

- Support for three years over a five year period.
- Stipend of \$32k *plus* waiver of tuition and fees to the Fellow plus \$12K to the institution. Proposal pending to raise stipend to \$34k in 2015.
- Includes enhanced supercomputer access (also for those given Honorable Mention).
- Must be U.S. citizen or national or permanent resident.
- Applicants can apply as college seniors, after graduation but before entering grad school, and/or prior to completing the first term of the second year of grad school.
- Applicants must have completed no more than 12 months of full-time grad study or equivalent by August 1 (except in limited extenuating circumstances).

Focus on NIH Training Fellowships



Overview of NIH Fellowships

- Opportunities include both Institutional (T series) and Individual (F series) awards.
- In 2013 average overall success rate for F31 Fellowships was 29.7%
- Success rates varied by Institution; from 0% (NIBIB) to 54.5% (NIDCR) in 2013.
- More Analytical information at:
<http://grants.nih.gov/training/outcomes.htm#DataStatistics>
- See also the NIH Training Kiosk:
https://grants.nih.gov/training/F_files_nrsa.htm

F 31 Individual Pre-doctoral Fellowship

- Research project and training program must fall within the mission of participating Institutes.
- Training must enhance the fellow's understanding of health sciences and extend potential for a productive, independent research career.
- The application should document need for the proposed research training and the expected value of the proposed fellowship experience.
- Mentor/Advisor must be identified before proposal submitted.

Participation in F31 Individual Fellowships

- Not all NIH Institutes and Centers (ICs) participate in this program or for each deadline.
- For more information on your area/Institute see: Table of Contacts, submission dates and special interests:
 - http://grants.nih.gov/grants/guide/contacts/parent_F31.html
- “Consultation with relevant staff prior to submission of an application is strongly encouraged. “

Components of NIH Fellowship Proposals

- Research Strategy/Research Training Plan
- Prior Applicable Research Experience
- Sponsor/Mentor information, including Mentor's assessment of fellow's suitability for a research career
- Description of facilities
- Letters of Reference

Focus on NIH, contd.

- **Ruth L. Kirschstein National Research Service Awards for Individual Pre-doctoral Fellows (PA-14-147; F31)**
 - **Next due date: April 8, 2015**
 - **Purpose:** to provide up to five years support for promising candidates for research training which leads to the PhD or equivalent in the biomedical, behavioral, or clinical sciences.
 - <http://grants.nih.gov/grants/guide/pa-files/PA-14-147.html>
 - Up to five years; typically two to three.

Pre-doctoral fellowships to promote diversity

- **Ruth L. Kirschstein National Research Service Awards for Individual Pre-doctoral Fellowships to Promote Diversity in Health-Related Research (PA-14-148)**
 - **Next due date: April 13th.**
 - **Purpose:** to improve diversity of the health-related research workforce by supporting the training of pre-doctoral students from underrepresented groups.
 - Provides up to five years of support leading to PhD.; typically two to three
 - <http://grants.nih.gov/grants/guide/pa-files/PA-14-148.html>

Who is eligible?

- A. Individuals from underrepresented racial and ethnic groups;
- B. Individuals with disabilities;
- C. individuals from socially, culturally, economically, or educationally disadvantaged backgrounds that have inhibited their ability to pursue a career in health-related research.
- NOTE: Institution must certify eligibility.

Who is underrepresented?

- Underrepresented Groups include: African Americans, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians, and other Pacific Islanders.
- Note that “under-representation can vary from setting to setting and individuals from racial or ethnic groups that can be convincingly demonstrated to be underrepresented by the grantee institution are eligible for support.”
- Individuals with mental or physical disabilities.

Eligibility: Disadvantaged background

- Low income; family income below certain thresholds, or
- Individuals from a social, cultural, or educational environment “such as that found in certain rural or inner-city environments.”
- **NOTE:** “Eligibility related to a disadvantaged background is most applicable to undergraduate candidates, but would be more difficult to justify for individuals beyond that level of academic achievement. Under extraordinary circumstances the PHS may, at its discretion, consider an individual beyond the undergraduate level to be from a disadvantaged background.”

A final thought on searching for opportunities...



Time for a short break....



Your Student Research Agenda: Building Networks and Relationships



Building Your Networks: Getting Started

- Who is in your network?
- Who should be in your network?
- How do you solidify those relationships?



Before you start writing...

- Who are you and why should the program fund you?
- What are your long term goals?
- What do you want to accomplish?
- Can you express yourself well?
- What are your personal short and long term scientific career goals?
- 5-10 year plan or 'horizon'



A little activity...

- Write a one paragraph summary of your research or career interests.
- Be prepared to talk about your career goals: where will you be and what will you be doing in ten years?



Building Relationships with Funders

- Once you have found a funding source that appears to be a good fit, work to establish a relationship with the Program Officer.
- National Science Foundation Mantra (true for almost all agencies): “Ask Early, Ask Often”



Building Relationships with Funders

- EMAIL AND CALL THEM! TALK TO THEM AT CONFERENCES!
- But first ask yourself:
 - Will you further the goals of the funder?
 - Did you do your homework?
 - e.g., read the literature in your area, understand previous work, read their website, etc.
- Ask them about 'fit': Are you/Is your selected area of research something they want to support?

Building Relations with Funders: Getting Started

- Do your homework: Check out your targeted agency's previous awards. Abstracts usually on website.
- Read the RFA: The solicitation provides important information
 - Eligibility requirements
 - Goals and objectives of program
 - Availability of funds
 - Required proposal sections
 - Peer review process and peer review criteria
 - Due dates
 - Contact information

Practice: Your ‘Elevator Speech’

- What would you tell an educated lay person about your research area, what is the significance/why is it important, what you plan to do, and how you will know if you have been successful?
- What are your long term goals?
- What will you be doing in ten years?
- Three minutes max!
- Report back.



What do you want others to know?

- Your ‘elevator speech’ PLUS:
 - What do you want your network and funders to know about you and about your research?
 - Why do you want funding?
 - What can you contribute to the funders/collaborators/faculty members interests/goals?
 - Be honest and realistic about work to be done and potential impact.
 - How will your work further the field?

Time to start writing....



But first.....

- Read the Solicitation and application instructions!
- Determine the submission process for your application.
- Get registered for an online submission.
- Read the Solicitation again!
- Discuss your proposal with your faculty advisor.
- Is it a good fit? What if you aren't sure?
- Read the Solicitation a third time!
- Develop a time line for each step of your application, working backwards from the due date.
- Ok, start writing...

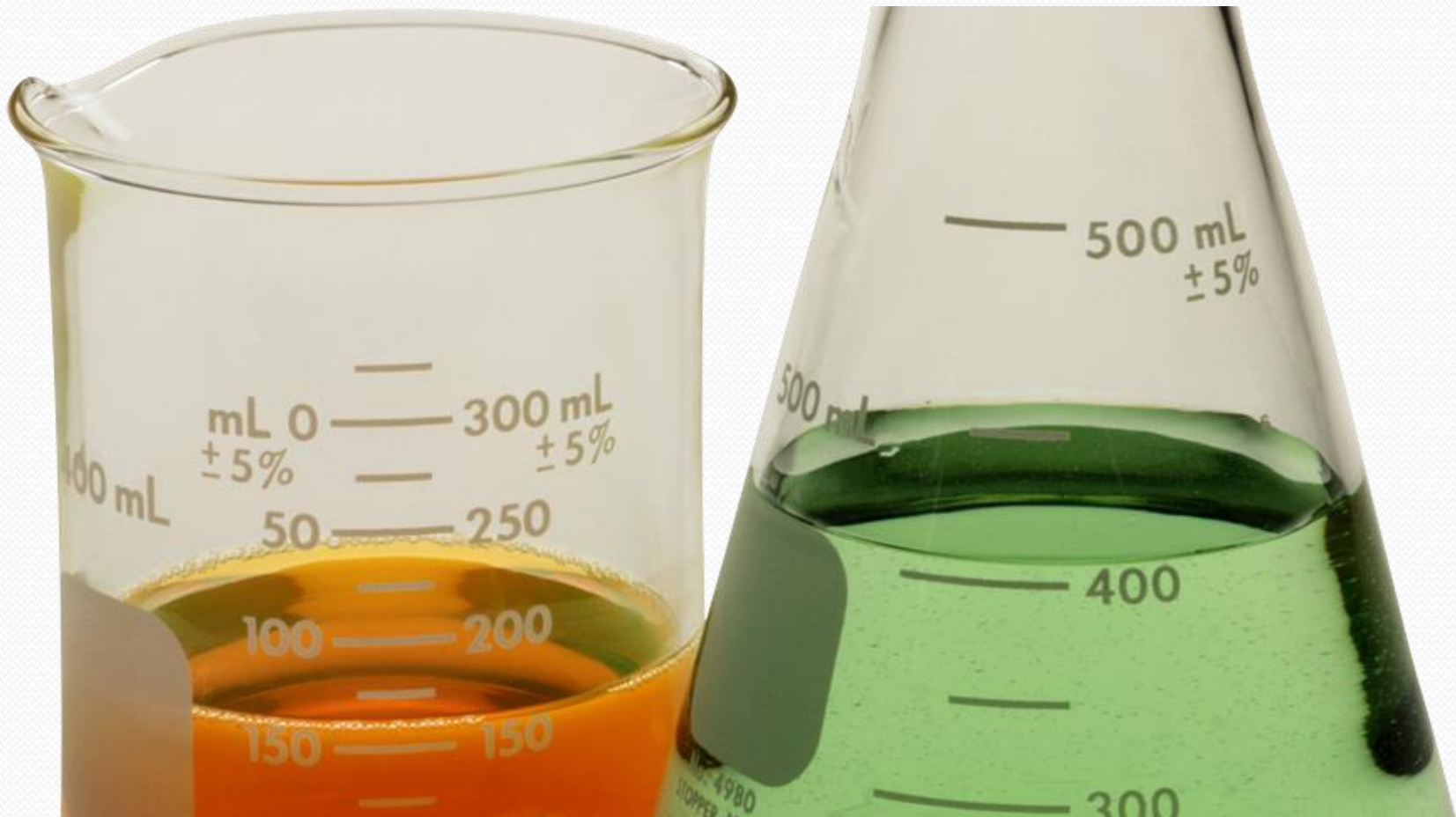
Some questions to think about...

- What are the expected outcomes of your research?
- How is your research plan innovative?
- What training opportunities does the research provide for you?
- What are you and your mentor/research group's competitive advantages?
- Are you (and your mentor/research group and collaborators) qualified to study this area?
- Does your institution have the resources to do the proposed work?
- What hypothesis will you test in your research?
- What approach(approaches) will you take ?

Getting started and doing your homework

- Create a proposal production schedule
 - Identify all required steps in the process, then back into your schedule
 - Mark due dates on your calendar –set a time frame with interim ‘due dates’. (this would include dates for getting letters of recommendation, etc.)
 - Divide the proposal into small parts, and identify the date by which you need to complete each part
 - Build in time for internal, peer review!
 - Don’t forget....Murphy’ s law
- Stick to your schedule!
- From “The Craft of Grant Writing”, McBride, TMU

Elements of a Research Proposal Fellowship



Typical Fellowship Proposal Format

- Personal Profile and Personal Statement
- Previous Research Experience
- Proposed Plan of Research (format varies by agency)
 - Introduction/Summary/Abstract
 - Specific Aims/Hypothesis/Objectives
 - Background/Significance (including lit review)
 - Current research/prelim data (if applicable)
 - Research designs and methods/timeline
 - Anticipated findings/results
 - References cited
- Description of mentorship/grad program environment
- Letters of Recommendation
- Transcripts and GRE scores (for some)

Personal Statement

- Describe personal, professional, and educational experiences or situations that prepared you or contributed to your desire to pursue advanced study.
- Describe your competencies and evidence of leadership potential.
- Discuss your career aspirations and how the fellowship will enable you to achieve your goals.
- Don't hesitate to show your passion!

Sample Outline, personal statement

- **Part I. Introduction:** In 3-5 sentences or less, make an interesting point about your unique background, your goals, or your vision for benefitting society. Convince the reviewers that you are intelligent, innovative and articulate.
- **Part II. Body:**
- **A.** Outline your educational and professional development plans and your career goals. Make this connection for reviewers: How will this fellowship prepare you for a career that allows you to expand scientific understanding *as well as* benefit our society?

-Adapted with permission from materials created by Robin G. Walker, PhD, University of Missouri, Columbia.

Sample Outline, contd.

- **B.** Describe specific personal, professional or educational experiences that motivated you to pursue advanced studies.
- ***Hint:*** Reflect on different experiences: teaching; outreach; leadership; mentoring; research; internships; jobs; scholarship; campus & community engagement; volunteer work; service with underrepresented groups; study or travel abroad; or inspiring role models. Identify what you learned, or how your thinking changed. *Why* did those experiences motivate or prepare you to undertake a research-based graduate degree?

Outline, contd.

- **C.** Give specific examples of your previous research and/or professional activities. Present a concise description and highlight the results. Discuss how these activities have prepared you to conduct the proposed research. Specify your role in the activity.
- ***Hint:*** This is where you should list prior publications, presentations, etc. Consider how you have successfully used your leadership and communication skills on research teams and in interdisciplinary settings. What research and scholarship skills did you acquire? *How* will you be able to use your skills in graduate school? If you worked with people from other countries, *how* can you apply your cultural literacy to connect with international researchers?

Outline, contd.

- **D.** Describe the contributions of your activities to advancing knowledge in your field as well as the potential for broader societal impacts.
- **Hint:** For NSF, this prompt relates to the **intellectual merit** and **broader impacts** review criteria. Point to specific examples of your previous and proposed activities (i.e., research *and* outreach activities) to demonstrate the criteria. Be concise and realistic about advancing knowledge. Specify *who* will benefit from your research and outreach activities, and *how* they will benefit. Use **bold** to emphasize the review criteria, and label each.

Outline, contd.

- **Part III. Conclusion:** In 3-5 sentences or less, conclude your essay. Examples: Reiterate how a graduate (or undergraduate) degree will help you achieve your career goals; explain how the fellowship will enable you pursue a particular line of research; or describe how you intend to contribute to your profession as a scientific leader or address social needs or global challenges.

NSF Personal, Relevant Background and Future Goals Statement (3 pages)

- *How do you envision graduate school preparing you for a career that allows you to contribute to expanding scientific understanding as well as broadly benefiting society?*
 - Describe your personal, educational and/or professional experiences that motivate your decision to pursue advanced study.
 - Include specific examples of any research and/or professional activities in which you have participated; how have these activities prepared you to seek a graduate degree.
 - Specify your role in the activity including the extent to which you worked independently and/or as part of a team.
 - Describe the contributions of your activity to advancing knowledge in STEM fields as well as the potential for broader societal impacts. (Intellectual Merit and Broader Impacts – label each)
 - SOURCE: NSF(2013)

Previous Research Experience

- Describe any scientific research activities in which you participated;
- Describe how these activities helped you improve analytical skills, flexibility, discipline, self-direction, time management, creativity, resourcefulness, etc.
- Describe technical skills acquired: research design, data collection, field research, data analysis, data protection, responsible conduct of research, grant proposal writing, presentation skills, etc.

Previous Research Experience, contd.

- Explain the purpose of the research and your specific role in the research including the extent to which you worked independently and/or as part of a team
- Describe how results were disseminated (conference, publication, thesis, etc.)
- How does your prior experience shape what you want to do next?

Proposed Research Plan

- Must be clear, concise and original;
- Rationale, aims and methods must be well-grounded in the literature in your field.
- Don't forget to explain why your current mentorship environment is the right place to conduct this research; tie it back to the quality of the training environment!
Always work closely with your mentor to develop the plan.

Research Plan: Literature Review

- Take time to do a very complete review:
- Another researcher may already have shown that your hypothesis is wrong;
- Another researcher may have shown your methodology to be flawed;
- The work may have been done already, or literature may address the limitations.
- Published peer-reviewed is the most convincing argument to back up your claims and to support your research plan and design.

Research Plan: Introduction and Problem Statement

- Why do you want to study this area?
- Why is this an important scientific area to study?
- Brief Literature review: What is known about this area of investigation?
- What is unknown about this area of investigation?

Research Plan: Methods: Anticipated problems & pitfalls and their solutions

- State the most *reasonable* problems and how you plan to overcome them (Don't have to explain every *conceivable* problem, nor do you have room to do so);
- If an anticipated problem could “nuke” the whole project, you probably need to rethink your study design.
- If you have weaknesses or lack certain skills, how will you overcome those obstacles? How will you acquire skills you need? (Remember: is it doable?)

Specific Aim/Objective Do's

- Clear
- Written in nontechnical terms
- Focused
- Concise
- Interesting
- Simple
- Align with hypothesis(es)
- Have them reviewed!

Specific Aim/Objective Don'ts

- Too many aims (3-4 **max**)
- Hypothesis is not **CLEARLY** stated
- Hypothesis is objective restated
- Omit long term goals
- Vague, unfocused aims

Expected results & future research plans

- What are the expected results and what are the implications if your hypothesis is true?
- What will you do with UNEXPECTED results?
- What future research can you plan based on the results of this proposal; how will it further your career?

Timetable

- If space allows, include a timeline to show when different components of your project will take place.
- Consider putting the timeline early in the research plan.
- Can organize by Specific Aim, Objective and Year.

NSF Graduate Research Plan (2 pages max)

- Present an original research topic that you would like to pursue in (graduate) school.
- Describe the research idea, your general approach, as well as any unique resources that may be needed for accomplishing the research goal (access to national facilities or collections, collaborations, overseas work, etc.)
- You should include important literature citations.
- Address the potential of the research to advance knowledge and understanding within science (intellectual merit) as well as the potential for broader impacts on society. Label or bold each to be clear.
 - -Source: National Science Foundation, 2013

Graduate Research Plan, contd.

- Your rationale for selecting a particular research topic should be informed by the literature.
- The research topic should relate to your stated career goals.
- The scope must be doable for a graduate student's research project; be realistic about the resources you need.
- Approach should include rigorous data collection/analysis methods for a quantitative, qualitative or mixed methods study.
- Work closely with a mentor or advisor on this statement.
 - Adapted with permission from materials created by Robin G. Walker, PhD, University of Missouri, Columbia;
<http://grfpessayinsights.missouri.edu/index.php>

Letters of Recommendation

- Select faculty/employers who know you well and who can give you a positive reference (undergraduate research experience great opportunity to develop references).
- Provide them with info that will provide details they can include in the letter (e.g., a draft of your research essay, a resume, a summary of your career plans, etc.).
- Example: NSF: Letter should explain the nature of relationship to the applicant and comment on the applicant's potential for contributing to a globally-engaged science and engineering workforce, the applicant's academic potential and prior research experiences, and the applicant's proposed research.
- Follow up and be sure they know length limits, if any; requirements for content; and the process and deadline to submit.

What Makes a Fellowship Proposal Competitive?



Time for another short break...



Competitive Training Proposals and Fellowships:

- Clearly describe the training environment.
- Demonstrate how environment will support and further fellows' training research and career and include an excellent career development plan.
- Reflect quality of the mentor/mentee relationship.
- Include plans to evaluate the trainees progress.

Competitive research proposals, contd.:

- Demonstrate knowledge of subject area and literature.
- Contain new and original ideas.
- Have a succinct, focused project plan with appropriate methodology.
- Are focused on achieving the aims and objectives; are not a patchwork of unrelated tasks.
- Address the Big Picture; clearly state why the proposed research is important, significant, and what it will contribute to the field.

Competitive research proposals (including fellowships):

- Are tailored to the goals of the agency.
- Are ‘doable’ : the research will be feasible and realistic within the budget and timeframes stated.
- Do not promise too much: “Balance ambition with sense” (Howard, NSF Astronomy Div.) (Note: especially for fellowships).
- Don’ t lose them up front: Abstract and introductory sections are clear and straightforward.
- Are clear and well-organized; demonstrate the applicant’ s communication and organizational skills.

A few general tips.....

- **Read the instructions and solicitation! Four times!**
- If there is a gap in your expertise address it.
- Answer the questions you would have if you were reviewing the proposal.
- Include relevant, quality graphics: many reviewers are visual thinkers!

A few more tips...

- Include a timeline if appropriate.
- Ask your advisor and other faculty and graduate students if you can read copies of their successfully funded proposals. Ask them to read yours.
- Ask an educated ‘lay’ person to read and comment on your proposal.
- Ask another person to proofread and edit the final draft.

A few more tips

- www.nsfgrfp.org/applicant_resources/tips_for_applying
- Awardees “Top Tips” (From the NSF GRFP):
 - Start early!
 - **Demonstrate your motivation and passion**
 - Have others review your essays (including those in your field and not)
 - Get input from your mentors and other faculty
 - Get input from previous applicants
 - **Be sure to adequately address NSF Broader Impacts Criterion**
 - **Highlight significance of your research**
 - **Strong letters of recommendation**

Tips from the NSF GRFP....

- Reviewers “Top Tips”
 - Get undergraduate research experience
 - Become involved in community service and leadership roles
 - Clear, scientifically sound essay
 - Strong academic record
 - Be sure to adequately address NSF Broader Impacts Criterion
 - Strong letters of recommendation
 - History of accomplishments
 - Demonstrate passion and motivation
 - Demonstrate your knowledge
 - Demonstrate significance of your work
 - Be realistic (yet ambitious....)

A few general writing tips.....

- What if English isn't your first language (for US based fellowships)?
- State things simply in common terms.
- Define terms clearly if you must use nonstandard language.
- Avoid 'jargon', abbreviations and acronyms.
- Use informative subheadings.
- Write in active voice.
 - Jane heard it through the grapevine... or
 - It was heard by Jane through the grapevine...
 - For this and more, see Grammar Girl:
<http://grammar.quickanddirtytips.com/active-voice-versus-passive-voice.aspx>

Submission and Review Process

“I love deadlines. I like the whooshing sound they make as they fly by.”

- Douglas Adams, (also used by Scott Adams in a Dilbert cartoon).

Submitting your fellowship proposal

- For some agencies (e.g. NSF), you submit online.
- For others (e.g. NIH), Sponsored Projects is the submitting entity.
 - Contact your Sponsored Projects Office for help.
- Either way, be familiar with website (and enrolled if necessary) WELL in advance of the deadline.



A few final submission tips....

- Complete the application in full. Note if something is not applicable on the application. Do not leave items blank.
- Follow directions. Do not supply items not requested (e.g., transcripts, resumes, etc.).
- Have a self-imposed deadline two weeks prior to the actual due date. Use this as proofreading time.
- Carefully proofread the entire application carefully.

The Review Process

- Understanding the review process can enhance your competitiveness!
- Most agency websites describe the review process; NIH even has video:
http://www.csr.nih.gov/video/video_print.asp
- Also check agency websites for their own assessment of their review processes.
- There may be multiple levels of review (administrative and scientific) and funding decisions; process can take months.

The Review Process, contd.

- Study Section (Review Panel) *may* be composed of experts and non-experts.
- Many fellowship proposals, but not all, are reviewed electronically (no face to face discussion).
- Reviewers have many proposals to read!
- They will get tired!
- They will get very irritated by even ‘small’ grammatical errors, typos, or sloppy presentation.
- When you are so close to your topic, it’s easy to assume that everyone else understands it as fully as you do.

Help reviewers be your advocates

- The application is the only thing reviewers will have in hand in order to evaluate your idea.
- Write for your reviewers, they need to see their interests in your proposal.
- Be sure to address ALL review criteria directly.
- Reviewers want to be able to advocate for good proposals.
- Reviewers want to support trainees and new scientists.
- Reviewers want to be excited by the science.

NSF Review Criteria

- Two National Science Board-approved Review Criteria; apply to all NSF applications including GRFP:
- Intellectual Merit: this criterion encompasses the potential to advance knowledge
- Broader Impacts: this criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes
- More on the NSF Review Criteria at:
http://www.nsf.gov/bfa/dias/policy/merit_review/

NSF Reviewers will be asked to consider the following questions in evaluating both criteria:

- What is the potential for the proposed activity to advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and benefit society or advance desired societal outcomes (Broader Impacts)?
- To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
- Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
- How well qualified is the individual, team, or organization to conduct the proposed activities?
- Are there adequate resources available to you to carry out the proposed activities?

Review Considerations for GRFP Applications

- The **potential** of the applicant to advance knowledge based on the totality of the content in the application, including the strength of the academic record, the proposed plan of research, the description of previous research experience or publication/presentations, and references. (**Intellectual Merit**); and
- The **potential** for future **broader impacts** as indicated by personal, professional, educational experiences, and future plans.
- Include specific discussions of both criteria in both research plan and personal statement (AND in reference letters)

- Source: NSF (2013)

The NSF Review Process

- Panelists are academic and research experts in general discipline, not necessarily in your research topic.
- Panelists rate your application using the two Merit Review Criteria, Intellectual Merit and Broader Impacts.
- Applications from seniors are reviewed separately than applications from graduate students.
- NSF requests panelists to provide constructive comments (applicants receive anonymous copies of the reviews).
- Panels make recommendations to NSF.
- NSF awards fellowships and honorable mentions.

Review Criteria NIH Fellowships

- Applicant's academic record, research experience and potential.
- Sponsor/Mentor's qualifications and match with applicant's research interests.
- High quality research training plan; training potential.
- Institutional environment.
- *From the Solicitation: Remember that these are training awards, not research awards.*

Post Review...

- Celebrate!
- Or...
- Make lemonade out of lemons...
 - Respect the process
 - Review the critiques
 - Ask your mentor to review them also
 - Call and discuss with the Program Officer
 - Revise and resubmit! (to this or other agencies)



Questions????

