Funding opportunities for Graduate Students and Postdocs at UPR

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ProposalsPR
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Today’s Goals:

• Put funding in the context of your education.
• Introduce you to potential sources of funding.
• Cover basics of proposal writing, hypotheses.
• Cover basics of personal statement for fellowship applications.
Time course of preparation for a career in science

- BS
- (MS)
- PhD
- PostDoctorate
- GOAL: POSITION IN ACADEMIA / INDUSTRY / GOVERNMENT

*But consider that your career begins now*
Keys to competitiveness

START EARLY ON ALL OF THESE

• Good mentor(s)
• Academic preparation
• Research
• Publications
• Networking
• Communication skills: writing and speaking
• ***Funding***
• Knowledge of the literature
• Synthetic, analytical, critical thinking skills
• Technical proficiency (instrumentation, experimental methods)
• Quantitative skills: experimental design, analysis
Practice 1

• What are your future goals?

• What are your strengths as a graduate student or postdoc that position you for that future?

• What do you want to improve in yourself as a graduate student or postdoc towards achieving that future?
Funding for students

To cover:

– Education (Fellowships/scholarships)
– Research
– Travel
– Enrichment experiences
– Internships
Money

Sources of Funding:
• University programs
• Foundations
• Federal Government
• Professional Organizations

How to find these opportunities??

Information on sources available from:
• Campus: Decanato de Estudios Graduados y Investigacion
• Search services: SpinPlus
Fellowship and other assistance from DEGI, UPR-RP


• Help with obtaining external funding:
  • http://graduados.uprrp.edu/index.php?option=com_content&view=article&id=138&Itemid=208&lang=es
SpinPlus


• El Decanato Auxiliar de Fondos Externos (DAFE) cuenta entre sus recursos con la suscripción de SpinPlus, una base de datos especializada para la búsqueda de fondos externos. Esta base de datos consta de tres módulos:
  – SPIN-módulo que le permite la búsqueda de fuentes de fondos en más de 4,900 agencias federales, corporaciones y fundaciones alrededor del mundo.
  – GENIUS (CV Database)-módulo que hace disponible (con autorización previa de su parte) su perfil a colaboradores potenciales a través del mundo. Esta aplicación le permite localizar alrededor de 31,000 posibles colaboradores procedentes de más de 600 instituciones que están suscritas a SpinPlus.
  – SMARTS (SPIN Matching and Research Transmittal Service)- es un sistema electrónico de avisos de disponibilidad de fondos. La información sobre áreas de interés del investigador/a se recoge a través de GENIUS y se utiliza para parearla con la base de datos SPIN. Los/as investigadores/as reciben los avisos mediante correo electrónico.
Spin Plus continued

• Para crear el perfil en el sistema y obtener un username y password:
• 1. Acceder al InfoEd eRA Portal (http://puertorico.infoed.org/)
• 2. Seleccione Get Profile
  – a. Seleccione Estado: Puerto Rico
  – b. Seleccione Institución: University of Puerto Rico
  – c. ¿Es este su perfil?: seleccionar en la lista su nombre
    • a. Si este es su perfil, seleccione si y marque continuar
    • b. Si su nombre no aparece en la lista seleccione Profile not found in list, y complete la información solicitada.

• Recibirá un correo electrónico de cbachier@degi.uprrp.edu en donde se le indicará su nombre de usuario y contraseña. Este nombre de usuario y contraseña los utilizará solamente para actualizar su perfil (Edit Profile) y para acceder el módulo GENIUS.

• Trainings are carried out every semesters on SPIN. For more information, please contact Carmen Hernandez at chernandez@degi.uprrp.edu
Externally funded fellowships UPR

• **PR Resource Center for Science and Engineering:**
  - **Puerto Rico Space Grant Consortium.** Various disciplines. Funded by NASA.
  - **PRLSAMP Bridge to the Doctorate:** For entering graduate students. Funded by NSF.
  - **Institute for Functional Nanomaterials.** Funded by NSF-EPCoR.

• **UPR-Rio Piedras**
  - **UPR-RP RISE Fellowships.** Biomedical biology and chemistry. Funded by NIH PRLSAMP Bridge to the Doctorate NSF.
  - **Neuro-environmental CREST.** Biology, Chemistry, Env. Sci. Funded by NSF.

• **Research grants to individual faculty**

• **UPR-Mayaguez??**
Federal Government

http://www.grants.gov/

- National Science Foundation (NSF)
- National Institute of Environmental of Health Sciences (NIEHS)
- Department of Energy (DoE)
- Department of Defense (DoD)
- Department of Agriculture (USDA)
- Environmental Protection Agency (EPA)
- National Oceanic and Atmospheric Administration (NOAA)
- National Aeronautics and Space Administration
- National Laboratories
- Smithsonian Institute
### Suspect Fraudulent Activity?

The United States Government does not require payment, of any kind, to receive federal grants. Learn how to recognize fraud and report it.

**Report Suspected Fraudulent Activity**

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### Find Open Grant Opportunities

<table>
<thead>
<tr>
<th>Funding Opportunity Number</th>
<th>Opportunity Title</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-559</td>
<td>Robert Noyce Teacher Scholarship Program</td>
<td>National Science Foundation</td>
</tr>
<tr>
<td>ND-NOFO-16-101</td>
<td>Beyond Borders: A Workshop on Filmmaking Across the Punjab Region</td>
<td>U.S. Mission to India</td>
</tr>
<tr>
<td>ND-NOFO-16-102</td>
<td>WE Can: Workshops and Business Plan Competition for Women Entrepreneurs</td>
<td>U.S. Mission to India</td>
</tr>
<tr>
<td>PAGA-PAAQM-16-001</td>
<td>A Diplomatic Simulations Program: Project Coordination, Curriculum Design and Video Production</td>
<td>Public Affairs</td>
</tr>
<tr>
<td>USDA-NRCS-AL-CTA-EQIP-16-01</td>
<td>Alabama CTA-EQIP Outreach Services</td>
<td>Natural Resources Conservation Service</td>
</tr>
<tr>
<td>USGS-16-FA-0132</td>
<td>Notice of Intent</td>
<td>Geological Survey</td>
</tr>
</tbody>
</table>
Practice 2

• List five topics that your research touches on (Help in guiding to appropriate funding sources).
National Science Foundation (NSF)
http://www.nsf.gov/

- NSF programs for graduate students:
      http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5234
    - Graduate Research Fellowship – (US citizens; Deadline: October 2015, check for this fall)
    - East Asia and Pacific Summer Institutes for U.S. Graduate Students (EAPSI) (US Citizens; Deadline November, 2015)
      http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5284&org=OISE
National Science Foundation (NSF)

http://www.nsf.gov/

National Institutes of Health

http://www.nih.gov/

• NIH Predoctoral and Postdoctoral Training Grants
  https://researchtraining.nih.gov/programs/training-grants
Department of Defense (DoD)

- National Defense Science and Engineering Graduate (NDSEG) Fellowship
  https://ndseg.asee.org/
  https://ndseg.asee.org/ndseg_fellows/opportunities

- Naval Research Lab Postdoctoral Fellowship
  https://nrl.asee.org/
Department of Energy (DoE)

http://www.energy.gov/

• Many opportunities: Scholarships and Internships: http://www.energy.gov/scholarships&internships.htm
• DOE Office of Science Graduate Student Research (SCGSR) Program http://science.energy.gov/wdts/scgsr/
• Minority Educational Institution Student Partnership Program (US citizens) https://www.doemeispp.org/
• DOE Scholars Program http://orise.orau.gov/doescholars/
• National Laboratories http://science.energy.gov/laboratories/
• Career Exploration Program (Including graduate students) http://www.usra.edu/capabilities/workforce/
Graduate Student Researchers Project https://fellowships.nasaprs.com/gsrp/nav/ (only renewal applications in 2012)
• Interns and other scholarship/fellowships https://intern.nasa.gov/
• Also try individual NASA research centers
Environmental Protection Agency (EPA)

http://www.epa.gov/
https://www.epa.gov/careers

• Predoctoral and postdoctoral opportunities https://www.epa.gov/careers/fellowships -scholarships-and-post-doctoral-opportunities

• Internships https://www.epa.gov/careers/student-internships

• EPA Marshall Fellowships http://www.marshallscholarship.org/applications/epa

• Research fellowships https://www.epa.gov/research-fellowships
Oak Ridge Institute for Science and Education (ORISE)
http://orise.orau.gov/default.aspx
http://orise.orau.gov/science-education/


• Research experiences http://orise.orau.gov/science-education/research-experiences/graduate-students/default.aspx


• Oak Ridge National Laboratory: Graduate Students: http://www.orau.org/ornl/graduate-students/default.htm
American Academy for the Advancement of Science (AAAS)

• Postdoctoral Fellowships
  http://www(aaas.org/page/fellowships
UNCF Special Programs for Minority Students
http://uncfsp.org/cms/index.cfm

• NASA Harriett G. Jenkins Predoctoral Fellowship Project
Fulbright Programs

- Fulbright Student Program:
  - Goal: to provide grants for individually designed study/research projects.
  - Academic research/study grants are available in approximately 140 countries.
    - [http://us.fulbrightonline.org/#&panel1-4](http://us.fulbrightonline.org/#&panel1-4)

- Fulbright Postdoctoral Program
  [http://www.cies.org/program/postdoc](http://www.cies.org/program/postdoc)
Fellowships for Biomedical Sciences

• Howard Hughes Medical Institute
  Gilliam Fellowships for Advanced Study
  http://www.hhmi.org/programs/gilliam-fellowships-for-advanced-study
Ford Foundation Fellowship Programs

• Goal: to increase the diversity of the nation’s college and university faculties by increasing their ethnic and racial diversity.

• All disciplines
  – Predoctoral
  – Dissertation
  – Postdoctoral

• [http://sites.nationalacademies.org/PGA/FordFellowships/index.htm](http://sites.nationalacademies.org/PGA/FordFellowships/index.htm)
GEM Ph.D. Science Fellowship

• Goal: to increase the number of minority students who pursue doctoral degrees in the natural science disciplines -- chemistry, physics, earth sciences, mathematics, biological sciences, and computer science.

• http://www.gemfellowship.org/students/gem-fellowship-program/
National Physical Science Consortium
http://www.npsc.org/index.html

• Goal: to increase the number of American citizens with graduate degrees in the physical sciences and related engineering fields, emphasizing recruitment of a diverse applicant pool including women and minorities.
Math fellowships

• Department of Energy Computational Science Graduate Fellowship
  http://www.krellinst.org/csgf/

• How to Win a Fellowship for Graduate Study in Mathematics
  http://people.math.gatech.edu/~harrell/GP/fellowship.html
Fellowships for Foreign Students

- Howard Hughes Medical Institute International Student Research Fellowships [http://www.hhmi.org/programs/international-student-research-fellowships](http://www.hhmi.org/programs/international-student-research-fellowships)
- Fulbright Foreign Student Program [http://foreign.fulbrightonline.org/](http://foreign.fulbrightonline.org/)
- Science without Borders. Scholarships for Brazilian students to study in the US [http://www.iie.org/programs/brazil-scientific-mobility#.VxjiCkfAbMs](http://www.iie.org/programs/brazil-scientific-mobility#.VxjiCkfAbMs)
- The Conservation, Food & Health Foundation [http://cfhfoundation.grantsmanagement08.com/?page_id=6](http://cfhfoundation.grantsmanagement08.com/?page_id=6)
US Department of Agriculture
http://www.usda.gov

• General information

• Internships  http://www.dm.usda.gov/employ/sip/index.htm

• Scholarships

• Postdoctoral Research Associate Program
  http://www.ars.usda.gov/careers/docs.htm?docid=1435
Coastal Management Fellowship
https://coast.noaa.gov/fellowship/

John A. Knauss Marine Policy Fellowship
http://seagrant.noaa.gov/fundingfellowships/knaussfellowship.aspx

Fisheries/Sea Grant Fellowship Programs
http://seagrant.noaa.gov/fundingfellowships/nmfssgfellowship.aspx

Dr. Nancy Foster Scholarship Program
http://fosterscholars.noaa.gov/aboutscholarship.html
Smithsonian Institute

http://www.si.edu/
http://www.smithsonianofi.com/

– Internships
http://www.smithsonianofi.com/blog/2012/12/26/smithsonian-internships/

– Fellowships
http://www.smithsonianofi.com/blog/2012/12/26/smithsonian-fellowships/

– Examples:

  • Smithsonian Tropical Research Institute (STRI)
    http://www.stri.si.edu/english/education_fellowships/fellowships/stri_programs.php
  • Postdoctoral Fellowships at the Smithsonian Marine Station
    http://www.sms.si.edu/Postdoctoral_Fellowships.html
  • Minority Visiting Students http://www.smithsonianofi.com/internship-opportunities/minority-awards-program/
  • Smithsonian Environmental Research Center (SERC)
    http://www.serc.si.edu/pro_training/internships/internships.aspx
    National Zoological Park (NZP) www.nationalzoo.si.edu
    http://nationalzoo.si.edu/UndergradInternships/default.cfm
Sigma Xi Grants-in-Aid of Research
https://www.sigmaxi.org/programs/grants-in-aid

- October 15, March 15 deadlines
- Some funding for non-members (25%)
- $400 to $1,000
- 1-2 Reference letters
- Budget
- Proposed Investigation: 500 words
- State the **background information** in your proposal very briefly. Avoid the common pitfall of presenting too much background and neglecting to develop methods and objectives.
- Describe your **methods** clearly, showing how they are used to address your hypothesis or research question.
- Indicate the significance of this research and how your study contributes to the **big picture** of research in your field of study.
- If the proposed work is part of an ongoing project, clearly state how your work meshes with the larger project and how your proposed work is a unique contribution.
- **Supporting literature**
Eligibility rules: US citizens, apply before fall semester of second year in grad program.

Application components:
- Official Academic Transcripts
- Three Reference Letters
- Personal, Relevant Background and Future Goals Statement (3 pages, ~1500 words)
- Proposed Plan of Research (2 pages, ~1000)
- References
How to apply for a graduate fellowship

• Fellowships provide support for study and research, usually for students in early stage of study. Also are dissertation fellowships
• Highly competitive
• 1. Define your research topics and goals. Develop a strategic plan for achieving them. Make a logical clear outline of your research goals, sources of information project methodology.
• 2. Explore fellowship possibilities (InfoEd International, Inc.).
• 3. Select at least 6 fellowships to apply for.
• 4. Research the fellowship programs: reporting requirements, restrictions, deadlines.
• 5. Get good letters of recommendation. From people with experience in your field of interest. Communicate with them about your interests, the fellowship programs.
• 6. Complete your applications: FOLLOW THE DIRECTIONS.
Preparation:

• Attitude:
  – Be self actualizing. Your future is in your hands. No one else can make it happen for you.
  – You need to have something to say on your applications, start NOW.

• Preparation starts with your courses:
  – Study hard, do as well as you can
  – Communicate with your professors so they get to know you and write you good letters.

• Need content for your essays
  – Develop your interests
  – Seek out experiences
  – Read on the topic of interest so that you have something to say in your essays.
Letters of Recommendation

• Recommenders will rank you on:
  – Knowledge in chosen field
  – Motivation and perseverance toward educational goals
  – Ability to work independently
  – Ability to work as a member of a research team
  – Ability to plan and conduct research
  – Imagination and creativity
  – Overall scientific ability.
Letters of reference should include:

(See also [http://www.nsfgrfp.org/reference_writers/tips](http://www.nsfgrfp.org/reference_writers/tips))

- Your name
- The length of time your reference has known you, the nature of your relationship, and their ability to assess your skills.
- Skills and strengths you possess that suggest your success in a rigorous research-oriented environment
- An assessment of your ability to work independently and in teams or groups
- Discussion of your personal integrity, maturity, judgment, work ethic, and attitude
- Identification of any weaknesses or concerns that might affect your ability to successfully complete the program
How do you measure up on these criteria? The letter writer may be asked to use these or similar....

• Motivation toward a productive career
• Growth during total period observed
• Imagination and originality of thought
• Emotional maturity and stability
• Ability to work with others
• Independence and self-reliance
• Leadership potential
• Mastery of fundamental knowledge in field
• Skill/originality of research project design
• Laboratory skill and technique
• Ability to communicate (written/oral)
Personal, Relevant Background and Future Goals Statement
(1000 words or 2 pages)
(Cornell University on NSF Graduate Fellowships; See also http://www.nsfgrfp.org/applicants/application_components)

• Personal:
  – About yourself
  – Career aspirations and how the NSF fellowship will enable you to achieve your goals
  – Two competencies
  – One piece of evidence for leadership potential

• Relevant background:
  – Two personal, professional, or educational experiences or situations that have prepared you or contributed to your desire to pursue advanced study in science, technology, engineering, or mathematics.
  – Consider for each previous experience:
    • Your role in the project,
    • Methods, equipment, procedures
    • Findings and implications, Skills gained
    • Intellectual merit, broader impacts
    • Did these result in publications or presentations made at professional meetings?

• Future Goals:
  – One reason for pursuing graduate study
  – One future goal
  – One reasons for choosing area of study, research problem

• Provide specific sections for BOTH the NSF Merit Review Criteria of Intellectual Merit and Broader Impacts
Practice 3. Research experience

• For one research experience, outline:
  – Your role in the project
  – Methods, equipment, procedures that you carried out
  – Significance of the project: findings and implications
  – Skills gained
Proposed Plan of Research (1000 words or 2 pages)

• **Introduction**: broad context, conceptually-motivated.
  – General problem that interests you, knowledge gap that your project will help to fill.
  – Focus on conceptually rigorous inquiry
  – Ask cutting-edge questions.

• Clear **questions and hypotheses** to be addressed by the research, which naturally stemmed from the Introduction.

• **Background**: Literature review of 3-4 sentences on previous key findings

• **Preliminary results**: 3-4 sentences on results from your lab or you

• **Methodology**: Very clearly explain methods and relate them to the hypotheses (Short, concise)

• **Possible problems**

• **Timeline**

• **Anticipated findings** (2-3 sentences)

• **Intellectual Merit** (2-3 sentences)

• **Broader Impacts** (2-3 sentences)

• **Your future goals** (1-2 sentences)
Practice 4: Research problem of interest

1) Research question you want to pursue
2) Gap in current knowledge that this research will help to fill.
3) What is your conceptual framework or theory?
3) A testable hypothesis derived from your research question (If I do XX, then my theory predicts that YY will happen.)
4) Try to develop an alternate hypothesis
   – another explanation for the same result,
   – or another result that could occur if a different premise (from another theory or conceptual framework) were true
**NSF Evaluation Criteria: Intellectual Merit**

- Intellectual Merit Criterion encompasses the potential to advance knowledge
  - The potential of the applicant to advance knowledge based on a holistic analysis of the complete application, including the Personal, Relevant Background, and Future Goals Statement, Graduate Research Plan Statement
  - Strength of the academic record, description of previous research experience or publication/presentations, and references.
  - Holistic review is a flexible, individualized way of assessing an applicant's interests and competencies by which balanced consideration is given to experiences, attributes, and academic achievements
  - When considered in combination, how the applicant has **demonstrated potential** for significant research achievements in STEM and STEM education.
NSF Evaluation Criteria: Broader Impacts

• Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.
• May be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project.
• NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to:
  – full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM);
  – improved STEM education and educator development at any level;
  – increased public scientific literacy and public engagement with
    – science and technology;
  – improved well-being of individuals in society;
  – development of a diverse, globally competitive STEM workforce;
  – increased partnerships between academia, industry, and others;
  – improved national security;
  – increased economic competitiveness of the US;
  – and enhanced infrastructure for research and education.
More on NSF Review Criteria

• The following elements should be considered in the review for both criteria:
• 1. What is the potential for the proposed activity to:
   – a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit);
   – b. Benefit society or advance desired societal outcomes (Broader Impacts)?
• 2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
• 3. 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?
• 4. How well qualified is the individual, team, or organization to conduct the proposed activities?
• 5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

• For more information on NSF Review Criteria, see
Top Tips from Awardees

(See also http://www.nsfgrfp.org, http://www.nsfgrfp.org/applicants/tips_for_applying)

• Start early, taking significant time to compose essays, and rewrite
• Demonstrate your personal motivation and excitement for research
• Spend time to thoroughly research your topic
• Integrate essays to create singular theme, link the content together
• Keep essays clear and simple to read
• Give essays to many people for review
• Get input from professors or university administration
• Get input from previous applicants or winners
• Thoroughly address both Intellectual Merit and Broader Impacts
• Be sure to include all volunteer, leadership and extracurricular activities
• Highlight the significance of your research and how it will impact society
• Pay close attention to language in the Program Solicitation
• Focus on getting strong recommendation letters
• Mention what sets you apart from a typical applicant - be unique!
Top Tips from Reviewers

(See also http://www.nsfgrfp.org, http://www.nsfgrfp.org/applicants/tips_for_applying)

• Gain research experience
• Become involved in leadership roles and community service
• Write clear and scientifically-sound essays
• Strive for scientific publications and presentations
• Have a strong academic record
• Select strong recommenders
• Link your teaching and research experiences
• Ensure you display a history of accomplishments
• Thoroughly address both Intellectual Merit and Broader Impacts
• Highlight any international experience you may have
• Display your passion and motivation in the essays
• Be knowledgeable of your research topic
• Demonstrate the significance of your proposed work
• Make sure the proposed research is realistic
More help at:

- NSF Graduate Research Fellowship Program Unofficial Guide Sheet
- Resources for applying for NSF Graduate Research Fellowships
  [http://grfpessayinsights.missouri.edu/](http://grfpessayinsights.missouri.edu/)
- How to Apply For the NSF Graduate Research Fellowship
General points on writing essays

- **Content**: You need content. Stay on topic.
- **Style**: Be concise but clear in your expression – do not waste your space.
- **Structure**: Use well structured paragraphs: Topic sentence, and develop the central idea in the paragraph. Transitions between paragraphs.
- **Grammar**: Use correct English grammar and spelling.
- **Help**: For second-language-English-users - The Purdue University Online Writing Laboratory [https://owl.english.purdue.edu/](https://owl.english.purdue.edu/)
General considerations

• Start early in the application process
• Read directions carefully and follow them exactly
• If you have questions, call or email the contact person
• Make sure the essays are well written
Resources for writing proposals

• Basic proposal writing course
  http://foundationcenter.org/getstarted/tutorials/shortcourse/index.html

• NSF guide to proposal writing

• NIH assists
  http://grants1.nih.gov/grants/grant_tips.htm

• The Grant Application Writer’s Workbook
  http://www.grantcentral.com/workbooks/
Other sources of information for your career

- Science Careers  
  http://www.sciencemag.org/careers
- SACNAS  http://sacnas.org/
- Ciencia Puerto Rico: 
  http://www.cienciapr.org/
- MentorNet  http://www.mentornet.net/
- National Research Mentoring Network 
  https://nrmnet.net/