

How to write a successful Predoctoral Training Grant

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Step 1

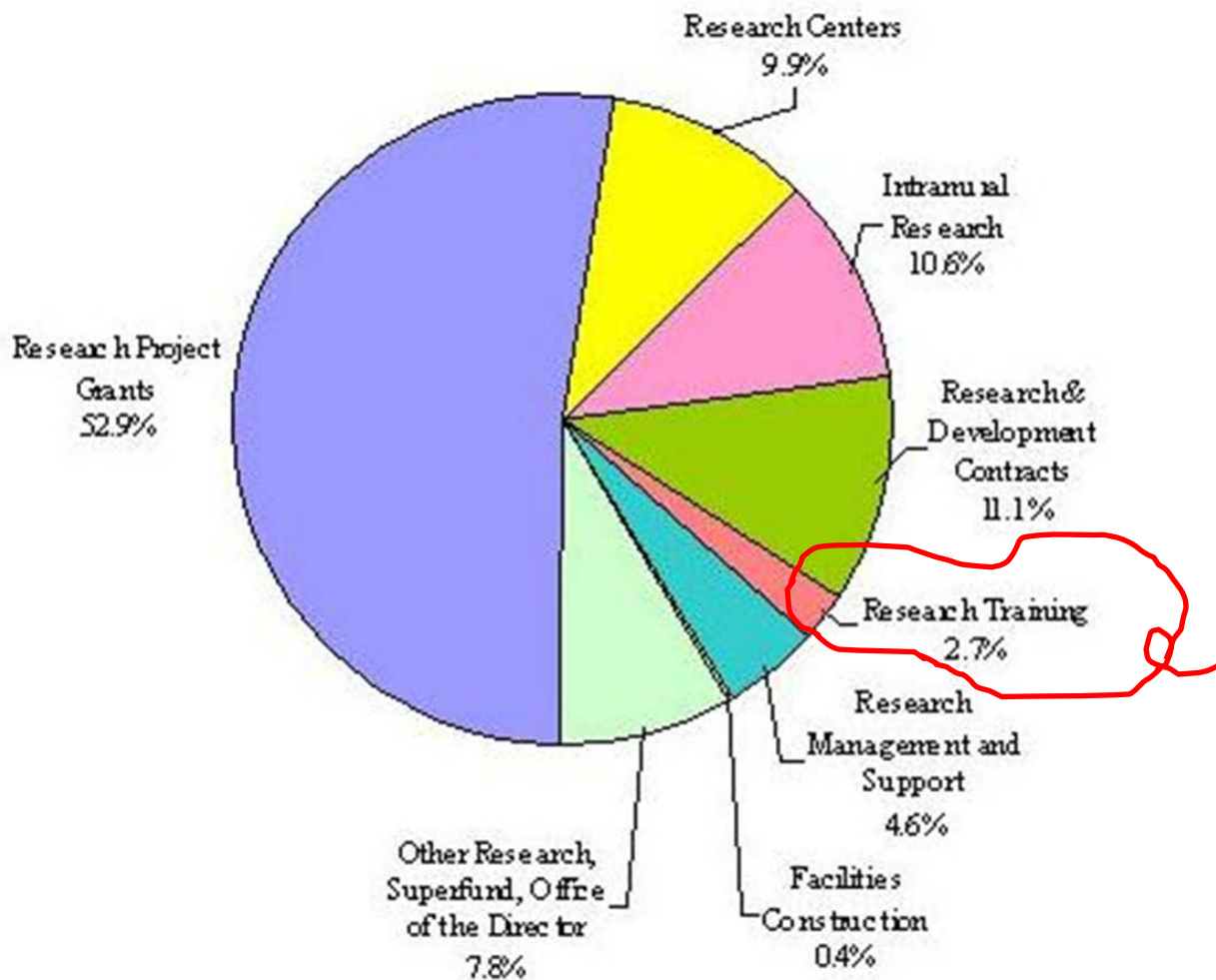
Find the right funding source for
Predoctoral Support of

What is available at the NIH?

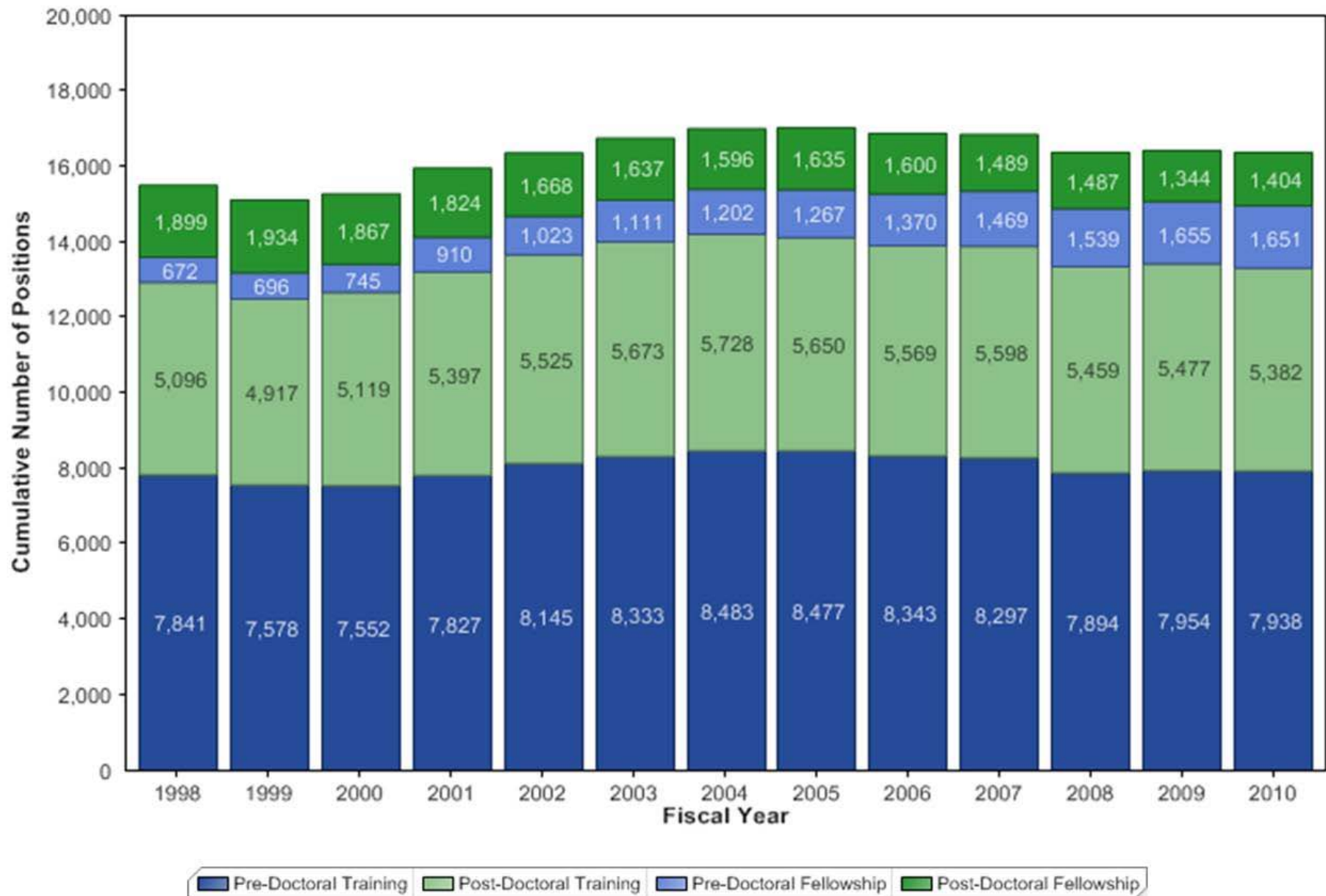
What is available at the NSF, NASA, Armed
services and Private Foundations

What is available from the NIH?

FY 2010 NIH Budget
\$31.0 Billion – Percent Total by Mechanism



Recent Training Grant Awards, National Institutes of Health



Institutes with some relationship to Kinesiology and Biomechanics

NIH Institutes

[National Cancer Institute \(NCI\)](#)

Harold E. Varmus, M.D.

[National Eye Institute \(NEI\)](#)

Paul A. Sieving, M.D., Ph.D.

[National Heart, Lung, and Blood Institute \(NHLBI\)](#)

Gary H. Gibbons, M.D.

[National Human Genome Research Institute \(NHGRI\)](#)

Eric D. Green, M.D., Ph.D.

[National Institute on Aging \(NIA\)](#)

Richard Hodes, M.D.

[National Institute on Alcohol Abuse and Alcoholism \(NIAAA\)](#)

Kenneth R. Warren, Ph.D. (Acting)

[National Institute of Allergy and Infectious Diseases \(NIAID\)](#)

Anthony Fauci, M.D.

[National Institute of Arthritis and Musculoskeletal and Skin Diseases \(NIAMS\)](#)

Stephen Katz, M.D., Ph.D.

[National Institute of Biomedical Imaging and Bioengineering \(NIBIB\)](#)

Roderic I. Pettigrew, M.D., Ph.D.

[National Institute of Child Health and Human Development \(NICHD\)](#)

Alan E. Guttmacher, M.D.

[National Institute on Deafness and Other Communication Disorders \(NIDCD\)](#)

James Battey, Jr., M.D., Ph.D. [National Institute of Dental and Craniofacial Research \(NIDCR\)](#)

Martha J. Somerman, D.D.S., Ph.D.

[National Institute of Diabetes and Digestive and Kidney Diseases \(NIDDK\)](#)

Griffin P. Rodgers, M.D., M.A.C.P

[National Institute on Drug Abuse \(NIDA\)](#)

Nora D. Volkow, M.D.

[National Institute of Environmental Health Sciences \(NIEHS\)](#)

Linda S. Birnbaum, Ph.D., D.A.B.T., A.T.S.

[National Institute of General Medical Sciences \(NIGMS\)](#)

Judith H. Greenberg, Ph.D. (Acting)

[National Institute of Mental Health \(NIMH\)](#)

Thomas R. Insel, M.D.

[National Institute on Minority Health and Health Disparities \(NIMHD\)](#)

John Ruffin, Ph.D.

[National Institute of Neurological Disorders and Stroke \(NINDS\)](#)

Story Landis, Ph.D.

[National Institute of Nursing Research \(NINR\)](#)

Patricia A. Grady, Ph.D., R.N., F.A.A.N.

[National Library of Medicine \(NLM\)](#)

Donald A.B. Lindberg, M.D.

[National Center for Complementary and Alternative Medicine \(NCCAM\)](#)



NHLBI Cardiopulm rehab., etc.



NIA Aging and motor dysfunction



NIAMS Musculoskeletal disorders



NIBIB MRI/imaging work



NICHD Congenital disorders/
developmental disorders



NIGMS Basic science toward diagnosis
treatment and prevention



NIMHD Minority health issues



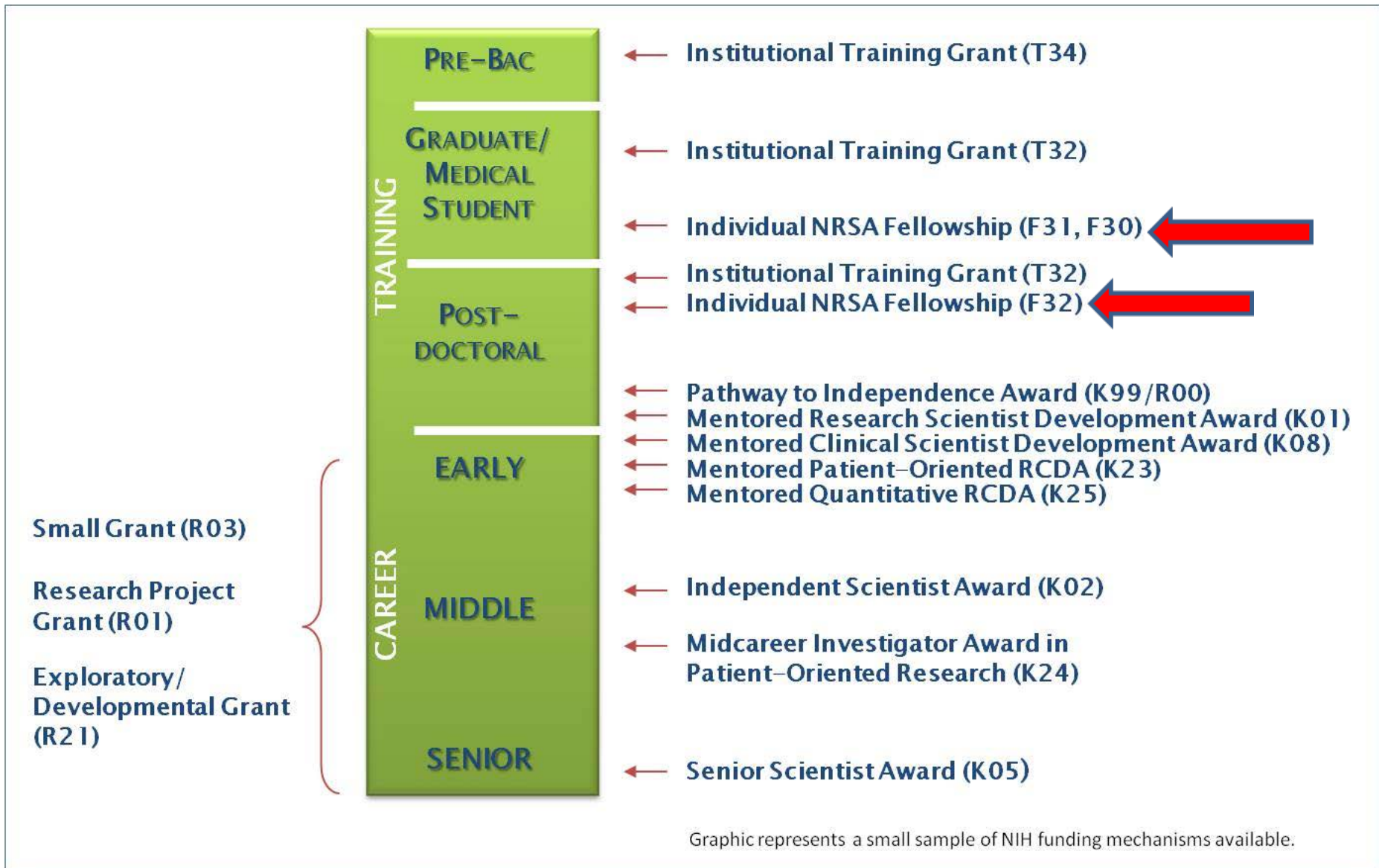
NINDS Stroke/ neurological disorders



NINR Patient outcomes/ pain/ exercise therapy.



NCCAM Unusual treatment strategies



F31: Support for Promising Predoctoral Candidates F30: MD/PhD. Candidates



Ruth L. Kirschstein

"Ruth L. Kirschstein was an icon at the National Institutes of Health (NIH), with a scientific and administrative public service career that spanned more than half a century. After doing important laboratory work on the polio vaccine, she made history as the first woman to direct an NIH institute, the National Institute of General Medical Sciences (NIGMS). Later, she served as deputy director and acting director of NIH."

NIGMS web site.

K Award Series named for Dr. Kirschstein for her dedication to developing training programs

Participating Institutes Related to Kinesiology/Biomechanics

As of August 2012

	F31 Awards	F31 Diversity	F32 Awards
Heart Lung and Blood (NHLB)	No	Yes	Yes
Institutes of Aging (NIA)	Yes	Yes	Yes
Arthritis and Musculoskel Dis. (NIAMS)	No	Yes	Yes
Biomedical Imaging and Bioengineering (NIBIB)	No	Yes	Yes
Child Health and Development (NICHD)	No	Yes	Yes
General Medical Sciences (NIGMS)	No	Yes	Yes
Neurological Disorders and Stroke (NINDS)	Yes	Yes	Yes
National Institute of Nursing Research (NINR)	Yes (if nurse)	Yes	Yes
Complementary and Alternative Medicine (NCCAM)	No after May/2012	Yes	Yes

All can be found on Granst.gov

F31 Announcement: <http://grants1.nih.gov/grants/guide/pa-files/PA-11-111.html>

F31 Announcement Nursing Predocs NINR <http://grants.nih.gov/grants/guide/pa-files/PAR-11-117.html>

F31 Diversity Announcement <http://grants1.nih.gov/grants/guide/pa-files/PA-11-112.html>

F32 Announcement

F32 Announcement for Postdocs in Muscular Dystrophy Research <http://grants.nih.gov/grants/guide/pa-files/PA-11-075.html>

Diversity Predoctoral Training Initiatives at the NIH

F31 Diversity Program

Emphasis for Diversity Hiring on T32 Institutional Training Grants

Research Supplements to promote Diversity on existing NIH Grants <http://grants.nih.gov/grants/guide/pa-files/pa-08-190.html>

(Sometimes an RO3 supplement)

Diversity Training Initiatives at the NIH and NSF

Who is Eligible?

A. Individuals from racial and ethnic groups that have been shown by the National Science Foundation to be underrepresented The following racial and ethnic groups have been shown to be underrepresented in biomedical research: African Americans, Hispanic Americans, Native Americans, Alaskan Natives, Hawaiian Natives, and natives of the US Pacific Islands.

B. Individuals with disabilities, who are defined as those with a physical or mental impairment that substantially limits one or more major life activities.

C. Individuals from disadvantaged backgrounds who are defined as: Individuals who come from a family with an annual income below established low-income thresholds. These thresholds are based on family size, published by the U.S. Bureau of the Census; <http://aspe.hhs.gov/poverty/index.shtml>. For individuals from low income backgrounds, the institution must be able to demonstrate that such candidates (a) have qualified for Federal disadvantaged assistance; or (b) have received any of the following student loans: Health Professional Student Loans (HPSL), Loans for Disadvantaged Student Program; or have received scholarships from the U.S. Department of Health and Human Services under the Scholarship for Individuals with Exceptional Financial Need.



Limited Support for Predoctoral Fellowships

General Program Solicitation:

<http://www.nsf.gov/pubs/2011/nsf11582/nsf11582.htm#summary>

<http://www.nsfgrfp.org/>



Funding



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Proposals and Awards

[Proposal and Award Policies and Procedures Guide](#)

Introduction

[Proposal Preparation and Submission](#)

- [Grant Proposal Guide](#)
- [Grants.gov Application Guide](#)

Award and Administration

- [Award and Administration Guide](#)

[Award Conditions](#)

[Other Types of Proposals](#)

[Merit Review](#)

Specialized Information for Graduate Students

The following programs provide either direct (i.e., from NSF) or indirect (i.e., from an awardee institution) funding for students at this level or identify programs that focus on educational developments for this group such as curricula development, training or retention.

- [Arctic Research Opportunities](#)
- [Catalyzing New International Collaborations](#)
- [Centers of Research Excellence in Science and Technology \(CREST\) and HBCU Research Infrastructure for Science and Engineering \(RISE\)](#)
- [CyberCorps: Scholarship for Service](#)
- [Doctoral Dissertation Improvement Grants in the Directorate for Biological Sciences](#) 
- [Dynamics of Coupled Natural and Human Systems](#)
- [East Asia and Pacific Summer Institutes for U.S. Graduate Students](#)
- [Ethics Education in Science and Engineering](#)
- [Graduate Research Fellowship Program](#) 
- [Integrative Graduate Education and Research Traineeship Program](#)
- [Integrative Graduate Education and Research Traineeship Program-CIF21 Track](#)
- [National STEM Education Distributed Learning](#)
- [NSF Astronomy and Astrophysics Postdoctoral Fellowships](#)
- [Pan-American Advanced Studies Institutes Program](#)
- [Postdoctoral Fellowships in Polar Regions Research](#)
- [Research in Disabilities Education](#)
- [SBE Doctoral Dissertation Research Improvement Grants](#) 
- [Science, Technology, and Society](#)

NSF Programs that may be of interest

Graduate Research Fellowship Program

The Division of Graduate Education and the Office of International Science and Engineering announce the Nordic Research Opportunity, available as a Supplemental Award, for NSF Graduate Research Fellows (GRFs) to enable Fellows to gain international research experience and establish collaborations with counterparts at **Norwegian, Finnish, Danish and Swedish research institutions.**

Doctoral Dissertation Improvement Grants

The National Science Foundation's Division of Behavioral and Cognitive Sciences (BCS), Division of Social and Economic Sciences (SES), National Center for Science and Engineering Statistics (NCSES), and the SBE Office of Multidisciplinary Activities (SMA) award grants to doctoral students to improve the quality of dissertation research. These grants provide funds for items not normally available through the student's university. Additionally, these grants **allow doctoral students to undertake significant data-gathering projects and to conduct field research in settings away from their campus** that would not otherwise be possible.

IGERT Integrative Graduate Education and Research Traineeship

Predocctoral Opportunities at Private or Charitable Institutions

Highly Recommend " Science and Engineering Scholarship and Fellowship Blog"
<http://blogs.asee.org/fellowships/> May be outdated and not kept up

Science and Engineering Scholarships and Fellowships Blog

About Applicant Requirement Fellowships Conference Funding Fellowships Funding for Working Scientists and Engineers Internships Faculty Fellowships University Based Fellowships

Recent Posts

- ▶ ONR Announces Multimillion-Dollar 'STEM Grand Challenge'
- ▶ 2011 Naval STEM Forum
- ▶ USF Sarasota-Manatee Wins SMART Scholarship
- ▶ 2011 NSF Graduate Research Fellow: Megha Sunny
- ▶ Webcast Of SMART Fellow Ryan Swindle

Recent Comments

- ▶ Anonymous on National Action Council For Minorities In Engineering Fellowship Opportunities
- ▶ Science And Engineering Scholarships And Fellowships Blog » 2010 NSF Graduate Research Fellow: Erica Brown on The NSF Graduate Fellowships Class Of 1952
- ▶ Science And Engineering Scholarships And Fellowships Blog » 2 Hamilton College Seniors Awarded NSF Graduate Research Fellowships on 2009 NSF GRFP Fellow: Sarah Latshaw
- ▶ Science And Engineering Scholarships And Fellowships Blog » 2 Hamilton College Seniors Awarded NSF

Fellowships

[National Science Foundation Graduate Research Fellowship Program](#)

2,000 fellowships were awarded with value of \$41,500 in 2010.

Includes full tuition and all required fees for three years, as well as a stipend of \$30,000 a year, a \$10,500 cost of education allowance, and a one time International Research Travel Allowance of \$1,000. Awarded annually.

[Science, Mathematics, And Research for Transformation Defense Scholarship for Research Program \(SMART\)](#)

300 scholarships with full tuition and related fees, health insurance, book allowance, an annual cash award rate between \$25,000 and \$41,000 (depending on prior educational experience), and post-graduation employment

Includes all university tuition and required fees as well as stipends depending on educational experience. Stipends start at \$25,000 and go up to \$41,000. It also offers paid summer internships, a medical insurance reimbursement allowance up to \$1,200 per calendar year, and a \$1,000 book allowance.

SMART Scholarship for Service Program is an opportunity for students pursuing an undergraduate or graduate degree in Science, Technology, Engineering, and Mathematics (STEM).

[National Aeronautics and Space Administration \(NASA\) Graduate Student Researchers Program \(GSRP\)](#)

300 awards with value of \$30,000 awarded annually

\$30,000 per year, renewable up to three years, divided as follows: \$21,000 student stipend, \$6,000 student allowance, and \$3,000 university allowance. Approximately 300 graduate students are supported annually.

Other fellowship pages: [Science and Engineering Faculty Fellowships](#)- [Faculty Fellowships](#) - [University Based Fellowships](#) - [Funding for Working Scientists and Engineers](#)- [Fellowships with Special Applicant Requirements](#)

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About SMART



About SMART

The Science, Mathematics And Research for Transformation (SMART) Scholarship for Service Program is an opportunity for students pursuing an undergraduate or graduate degree in Science, Technology, Engineering, and Mathematics (STEM) disciplines to receive a full scholarship and be gainfully employed upon degree completion. Students pursuing degrees related to the following are encouraged to apply:

- Aeronautical and Astronautical Engineering
- Biosciences
- Chemical Engineering
- Chemistry
- Civil Engineering
- Cognitive, Neural, and Behavioral Sciences
- Computer and Computational Sciences
- Electrical Engineering
- Geosciences
- Industrial and Systems Engineering (technical tracks only)
- Information Sciences
- Materials Science and Engineering
- Mathematics
- Mechanical Engineering
- Naval Architecture and Ocean Engineering
- Nuclear Engineering
- Oceanography
- Operations Research (technical tracks only)
- Physics

News



Has your school had a SMART Scholar yet?

Check here to find out.



SMART Fact

SMART Scholars have their full cost of tuition covered. There is no cap on the tuition benefit.

SMART on YouTube



Check out the SMART Scholarship on YouTube.



SMART Events

SMART Program and Event Calendars.



Other PReDoc funding opportunities to look into:

National Defense Science and Engineering Graduate Fellowship

Ford Foundation. All can apply, encourage diversity

Whittaker Foundation (Biomedical Engineering)

NASA Scholarship and Graduate Student Research Program

Hertz Foundation Graduate Fellowships

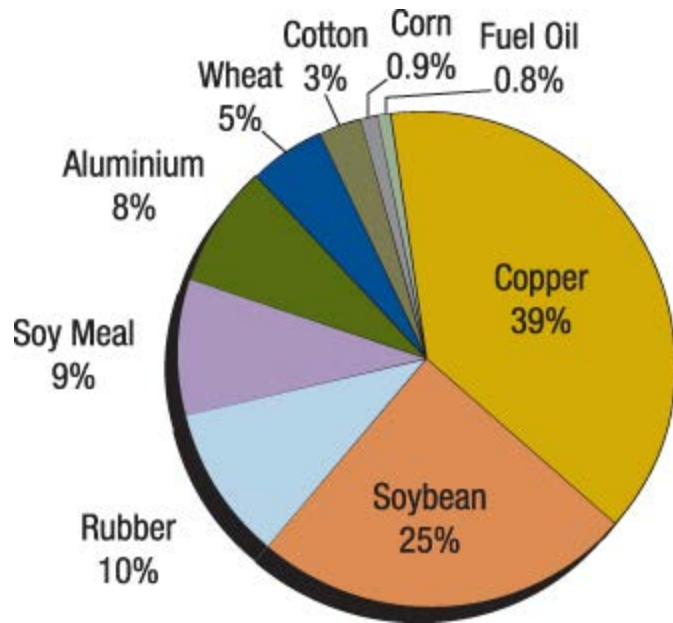
American Heart Association: Predoctoral and Postdoctoral awards

Parkinson's Disease Foundation Fellowships (postdoc only)

Considerations in Applying for an NIH F31 Predoctoral NRSA

LOOKING AT TRAINING GRANTS From a "manpower needs" perspective

As a grad student, you are a **commodity**



How valuable will you be?

What is the likelihood of a return on the investment?

Do we really need "your kind" for our future needs?

Eligibility for and F31

1. Being trained in an area of interest to the specific NIH Institute that supports F31s
2. US Citizen or have a U.S. Work Permit (Green Card)
3. Although not specifically stated, in general, one applies for F31's after completing a Masters Degree and/or completing your Qualifying Exam or Thesis proposal.

How **not** to get an F31 Training Grant

What is being evaluated?

Rough: My estimate of Committee Evaluation

40-50% Proposal and Training Plan (20% research)

20-30% Candidate Qualifications and Promise

20-30% Advisor and Institutional Strength

1. The Problem of "Placement"

Question: Are you and your advisor's laboratory a "perfect match" to advance the interests of science for future generations?



The View of the NIH

The NIH wants to match the best students with the best laboratories.....doing the most exciting, innovative research.

Assumption: If a student is serious about a direction of scientific inquiry they will go to the absolute BEST LABORATORY IN THE WORLD for that direction.



PLACEMENT "ISSUES" for Predoctoral Awards:

1. You have already been in the lab for several years without a publication or abstract; or you have moved around with several advisors over your initial career.
2. Your PhD advisor does not have evidence of **CURRENT** grant support to provide state-of-the-art research. For untenured faculty, start up funds are OK if they cover the time of support (see #3).
3. Your PhD advisor has never trained anyone successfully. For F31s you cannot have more than one advisor. Untenured faculty are looked at skeptically.
5. There is no evidence that you will be working in an area that will significantly advance the field or will train you for the next generation of science.
6. You are at an institution that does not have the facilities to train you at the cutting edge of research.

2. Problems with "The Candidate"

a. Publications or evidence of "commitment to the life of a scientist"

- 1) You will be competing against other candidates (most) who have published one or more articles, even as an undergraduate (usually co-author, but not always).
- 2) Do you have evidence of early interest in research training "early" in your training. E.g. evidence of undergraduate research, etc. Internships in research or medicine, etc.
- 3) Have you presented abstracts or oral presentations in your early training?
- 4) Have YOU collected data that you can report that provide evidence of commitment and progress in the lab you have chosen?

b. Poor pre-doctoral grades and GRE scores,

One or two graduate level "Ds" or "C-s" or poor GREs will kill most proposals. Undergrad grades that show upward trajectory sometimes works.

“Predoctoral applicants: Using the chart provided, list by institution and year **all undergraduate and graduate courses** with grades. Predoctoral applicants must also type in their scores for the **Graduate Record Examination (GRE)**, if available; and M.D./Ph.D. applicants should type”

“Postdoctoral applicants: Using the chart provided, list by institution and year all undergraduate courses and graduate scientific and/or professional courses **germane to the training sought under this award with grades**. In the space following the chart, explain any marking system if other than 1-100, A, B, C, D, F, or 0-4.0 if applicable. Show levels required for a passing grade. “

c. Unenthusiastic Recommendation letters. Reviewers spend a great deal of time reading these (believe it or not). Choose your reviewers carefully.

1) NEVER ask a non-faculty member (e.g. employer) or a faculty member who does not know you well to write a recommendation.

2) Any personal traits that come through as incompatible with success (procrastination, inability to communicate or write, etc.) will usually be enough to kill the proposal.

3) Remember, Graduate Program directors have a vested interest in you getting you funded... Often write supportive letters.

4) Some faculty have reputations for being *disproportionately tough* on recommendations. Try to find out if they have a history of the following:

“no one is as good as I was at that level” syndrome.



d. Another Death Warrant: Your Personal Statement

Education/Training

A. Personal Statement

“Briefly **describe why your experience and qualifications make you particularly well-suited for your role as a Fellowship applicant.** Within this section you may, if you choose, briefly describe **factors such as family care responsibilities, illness, disability, or active duty military service that resulted in a hiatus in training** or reduced your scientific advancement or productivity. “

Do not say, “I am still trying to figure out what I want to do. This training will really help me do that.”

or

“I am hoping someday to be a really *good teacher* of biomechanics and exercise and this postdoc will allow me to broaden my education”

No one wants to read how much you LOVE SPORTS... or how much you love WORKING WITH PEOPLE.

**NRSAs are NOT DESIGNED TO MAKE BETTER
TEACHERS**

3. Problems with the "TRAINING PLAN"

There are two "Training Plan" Sections

1) Research Proposal: Called "The Research Training Plan" in SR424 Instructions 6 pages

2) Sponsors Statement: Includes a "Training Plan." 6 pages

- 1) Research Proposal: Called "The Research Training Plan" in SR424 Instructions (limit 6 pages)
 - a) These are scrutinized at the same level as RO1s. Is it good science or isn't it? How significant is it? Is it a logical well thought out experimental plan? Make STRONG SPECIFIC AIMS.
 - b) A poorly written Research Training Plan, suggests poor mentorship by the advisor.
 - c) "Briefly" include in the text how the specific research WILL TRAIN YOU. If parts will be done by others it is O.K. to say that for completion. If it is clear you could not do all of this work it will look unrealistic.
 - d) How much should reflect your advisor's grants? Highly controversial.....only rarely discussed in Study Section.

3. Problems with the "TRAINING PLAN"

There are two "Training Plan" Sections

1) Research Proposal: Called "The Training Plan" in SR424 Instructions

2) Sponsors Statement: Includes a "Training Plan."

2. Sponsor and any Co-Sponsor(s) (if any) Information **(Limit to 6 pages)** SF424 (R & R)

a. **Research Support Available**

In a table, list all current and pending research and research training support specifically available to the applicant for this particular training experience.

b. **Sponsor's/Co-Sponsor's Previous Fellows/Trainees** *PHS SF424 (R&R) Individual Fellowship Application Guide Part I: Instructions for Preparing and Submitting an Application I-65*

Give the total number of predoctoral and postdoctoral individuals previously sponsored. Select five that are representative.....

c. **Training Plan, Environment, Research Facilities**

Describe the research **training plan that you have developed specifically for the Fellowship applicant**. Include items such as classes, seminars, and opportunities for interaction with other groups and scientists. **Describe the research environment** and available research facilities and equipment. Indicate the relationship of the proposed research training to the applicant's career goals. Describe the skills and techniques that the applicant will learn. Relate these to the applicant's career goals.

d. **Number of Fellows/Trainees to be Supervised During the Fellowship**

Indicate whether pre- or postdoctoral. Include this information for any co-sponsor as well.

e. Applicant's Qualifications and Potential for a Research Career : Describe how the Fellowship applicant is suited for this research training opportunity based on his/her academic record and research experience level, including how the research training plan, and your own expertise as the sponsor will assist in producing an independent researcher.

Common "Issues" with the Sponsor's Statement Training Plan

1. **"Cookie cutter" Training Plan.** One size fits all... It needs to be **UNIQUELY** suited to the Trainee and the advisor and thought about carefully.
 - a) What academic holes does that applicant need to fill, modeling, statistics, biochem, molecular biology, engineering, electronics, etc.? Include remaining courses to fill holes.
 - b) Does the applicant need to develop additional writing skills? Grant writing skills? Speaking skills?

2. **Consideration given to how the sponsor will provide an environment of camaraderie with other trainees and faculty?**
 - a) Journal clubs? Social outings? Travel?
 - b) Are there other trainees at various levels in the lab? Too many? Not enough?

More ISSUES

3. No formal training in Bioethics and Misconduct

1.16 Policy on Instruction in the Responsible Conduct of Research SF424_RR

“NIH requires that all trainees, fellows, participants, and scholars receiving support through any NIH training, career development award (individual or institutional), research education grant, and dissertation research grant **must receive instruction in responsible conduct of research.**”

It is not enough that you have “heard it all and taken it all as a grad student” You need to formally take it again, or propose to take it. It is very explicit about this...and checked off at the time of review.

4. No discussion of how the Sponsor will work “individually” with the trainee to make the transition to a future postdoc or faculty/investigator.

Discussions of how to run a lab?

Career/Postdoc Placement plans

How to balance family, career and self (mentorship)

Needs of women trainees in gender issues.

Needs of minority trainees.

Grant/Paper writing skills.

Opportunities to give seminars, jam sessions, working with other faculty

Have additional mentors been identified? Who is on Grad Committee and why?

Best of Luck

Please email me if you want a copy of this presentation or you have any questions.

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