



# Writing An NIH Research Proposal

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# Overview of Session

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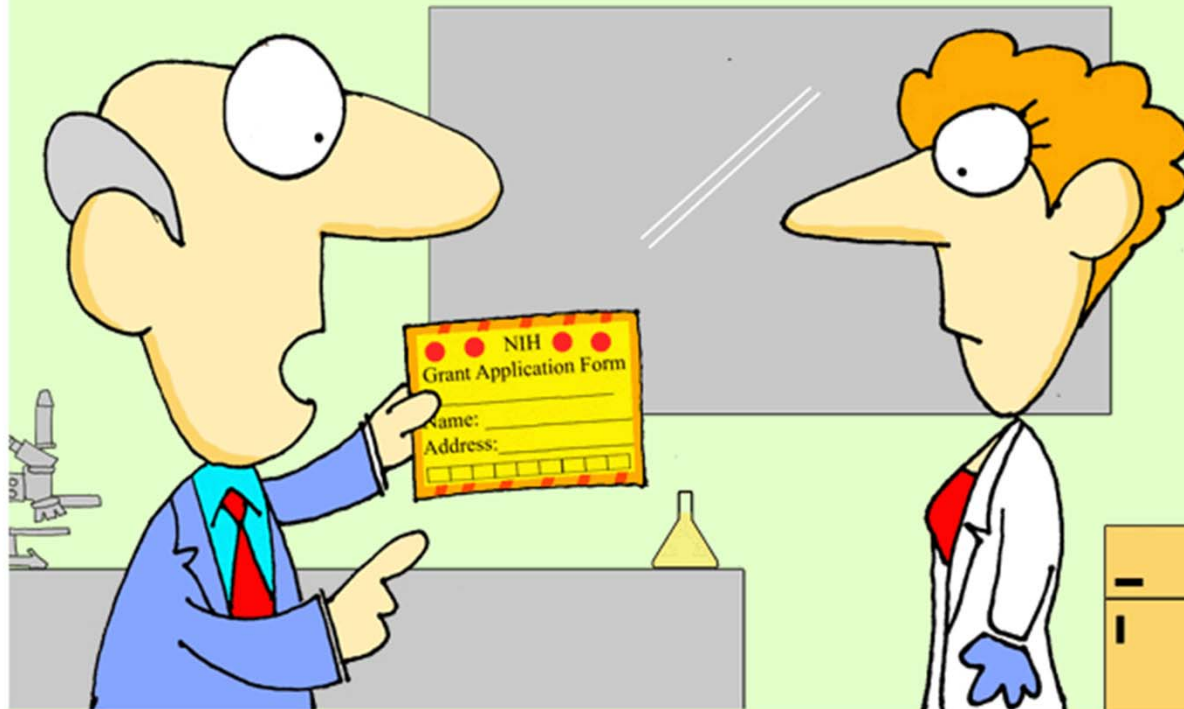
## ■ Today's Workshop

- NIH funding mechanisms
- Understanding the NIH format and review criteria
- Writing tips for successful applications

## ■ Future Additional Workshop Topics

- Defining your research question and writing specific aims
- Aligning methods with your aims
- The art of the personal statement on the biosketch
- Crafting a budget for personnel, materials and subcontracts
- Tips from the junior investigator view
- Mock Study Section
- Beyond the NIH – DOE, DOD, NSF, Foundations...

www.VADLO.com

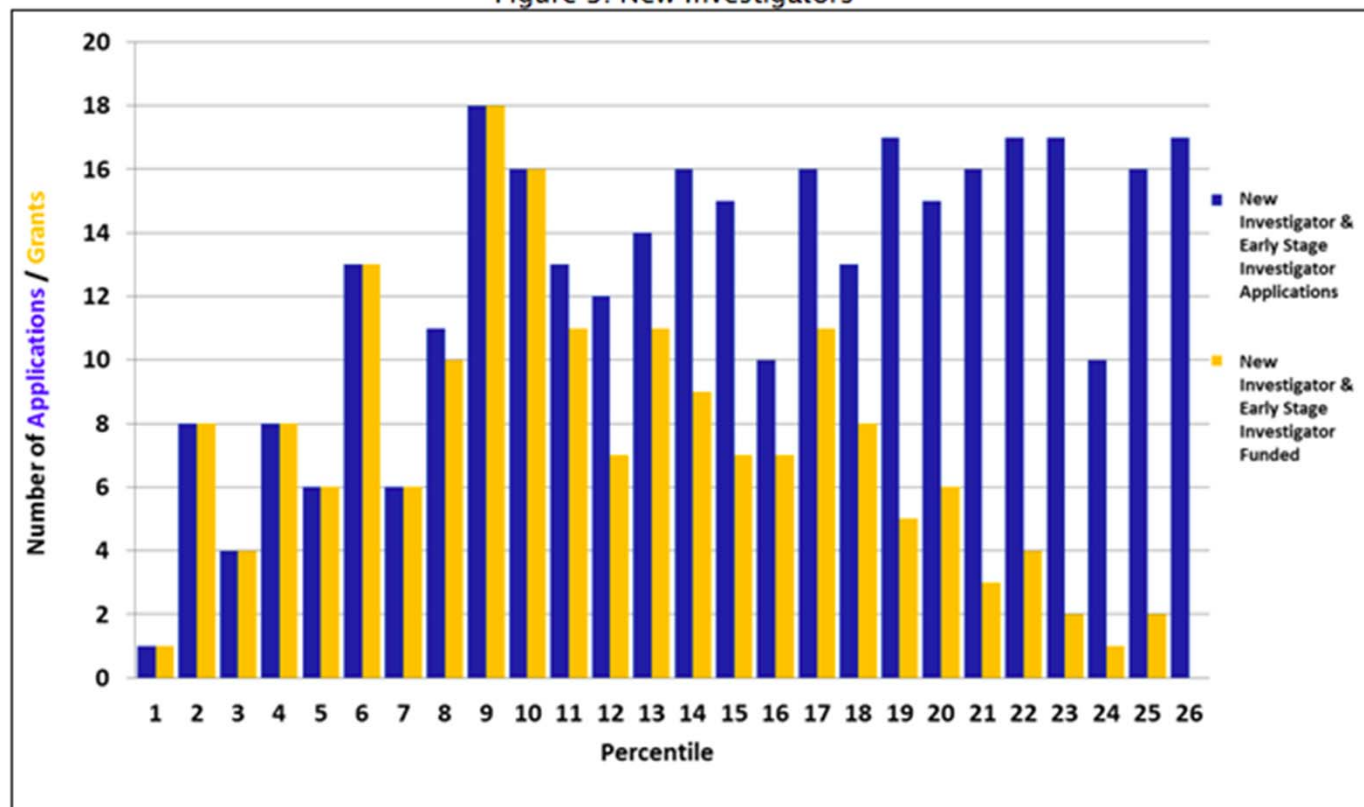


"I like the new format,  
but the Power Play option scares me."

# New Investigators: Still a priority

NCI FY2011 Competing R01 Applications and Awards

Figure 3: New Investigators





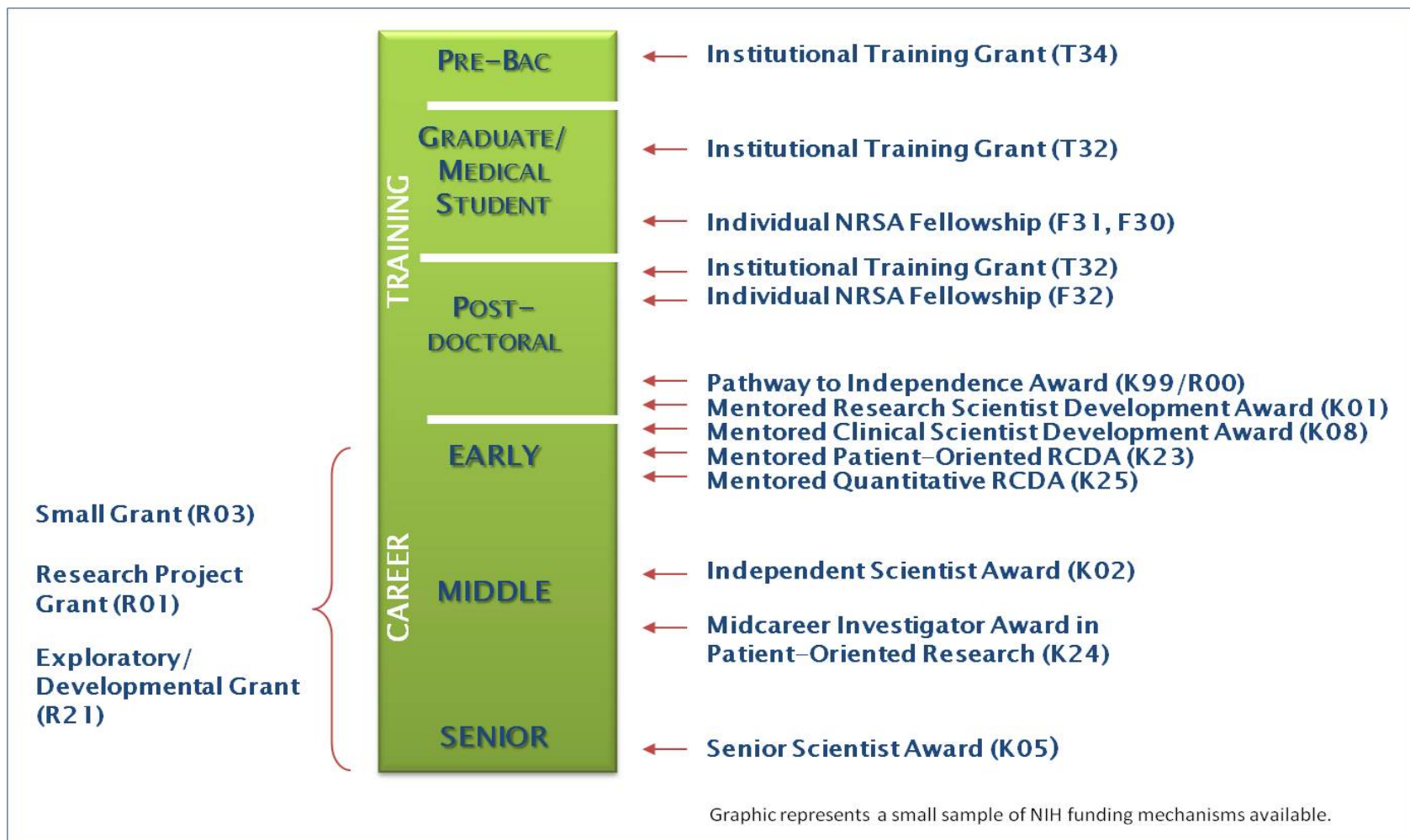
# NIH Funding Mechanisms

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- F = Fellowships (pre- & post-doc)
- K = Career Development Awards
- T = Training Grants
- R = Research Projects
- P = Program Project/Center Grants
- U = Cooperative Agreements Grants

# Career Development Awards

- <http://nexus.od.nih.gov/all/2011/10/07/trends-in-nih-training-and-career-development-awards/>





# What does it take to be K-competitive?

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- Demonstration of commitment to research
  - At least 1-2 publications (more is better!)
- Evidence of strong mentor-mentee relationship
- Clear training plan to show how you will develop research skills
- Good project



# Research Grants: R03

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- Small grants – Scope includes:
  - Pilot/feasibility studies
  - Secondary analyses
  - Development of research methodology or technology
- Maximum time = 2 years
- Maximum budget = \$100,000 (\$50K/yr)



# Research Grants: R21

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- Focus on exploratory/developmental work
  - Novel/innovative/riskier ideas
  - Extend previous work in new directions
- Maximum time = 2 years
- Maximum budget = \$275,000 (no more than \$200K in a single yr)



# Research Grants: R01

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- Research project grant
  - Broad range of projects
- Maximum time = 5 years, some eligible for competitive renewal
  - Many argue for smaller first project (3 yr)
- Maximum budget = no specified limit
  - Best to aim for \$350K/yr to start



# What Grant Type? What Institute?

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- Step 1: Draft an abstract with Aims (with input from mentors!)
- Step 2: Choose an Institute
  - Read their web pages to learn about THEIR priorities
  - Decide how your work fits/enhances their research agenda/portfolio
- Step 3: Call the Program Officer
  - Job = advocate for researchers, demystify process
  - Will help you with “fit” – how your work aligns with Institute mission



## 27 Institutes/Centers + Director's Office

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<a href="#"><u>NCI</u></a> Cancer	<a href="#"><u>NIAMS</u></a> Arthritis & Musculoskeletal/ Skin	<a href="#"><u>NIEHS</u></a> Environmental Health	<a href="#"><u>NCCAM</u></a> Complementary & Alternative Medicine
<a href="#"><u>NEI</u></a> Eye	<a href="#"><u>NIBIB</u></a> Biomed Imaging & Bioeng.	<a href="#"><u>NIGMS</u></a> General Medical Sciences	<a href="#"><u>NCATS</u></a> Advancing Translational Science
<a href="#"><u>NHLBI</u></a> Heart, Lung, Blood	<a href="#"><u>NICHD</u></a> Child Health & Development	<a href="#"><u>NIMH</u></a> Mental Health	<a href="#"><u>CIT</u></a> Information Technology
<a href="#"><u>NHGRI</u></a> Genome	<a href="#"><u>NIDCD</u></a> Deafness & Comm Disorders	<a href="#"><u>NIMHD</u></a> Minority Health/Disparities	<a href="#"><u>CSR</u></a> Scientific Review
<a href="#"><u>NIA</u></a> Aging	<a href="#"><u>NIDCR</u></a> Dental & Craniofacial Research	<a href="#"><u>NINDS</u></a> Neuro & Stroke	<a href="#"><u>FIC</u></a> Fogarty Int'l Center
<a href="#"><u>NIAAA</u></a> Alcohol	<a href="#"><u>NIDDK</u></a> Diabetes, Digestive & Kidney	<a href="#"><u>NINR</u></a> Nursing Research	<a href="#"><u>CC</u></a> Clinical Center
<a href="#"><u>NIAID</u></a> Allergy/ Infectious Disease	<a href="#"><u>NIDA</u></a> Drug Abuse	<a href="#"><u>NLM</u></a> Library of Medicine	<a href="#"><u>OD</u></a> Office of the Director




# Grant Cycles – Standard Dates

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<http://grants.nih.gov/grants/funding/submissionschedule.htm>

Activity	Cycle I-Winter	Cycle II-Spring	Cycle III-Fall
Due Dates: R01 K R03/R21	February 5 February 12 February 16	June 5 June 12 June 16	October 5 October 12 October 16
Scientific Merit Review	June – July	October – November	February - March
Advisory Council Round	August or October	January	May
Earliest Start Date	September or December	April	July



# New NIH Format = Paradigm Shift

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- Greater emphasis on:
  - Quality (versus quantity) of content
  - Funding New/Early stage investigators
- Shortening the research plan
  - Elimination of sections for literature review and presentation of preliminary data
- 9-point evaluation scale
- Standardization and shortening of reviews
- Linkage of sections of the application to each of the 5 core review criteria



# New Sections Template

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- Specific Aims (1 page)
- Research Strategy (12 pages for most)
  - Significance
  - Innovation
  - Approach
- Timetable
- Future Directions (optional)



## 5 Core Review Criteria

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- **Significance** – Addresses an important problem or critical barrier to progress
- **Investigators** – Qualifications of the team
- **Innovation** – Novel concepts or approach
- **Approach** – Feasibility/strength/match of strategy to project aims. Adequate human subjects protections
- **Environment** – Institutional support/resources



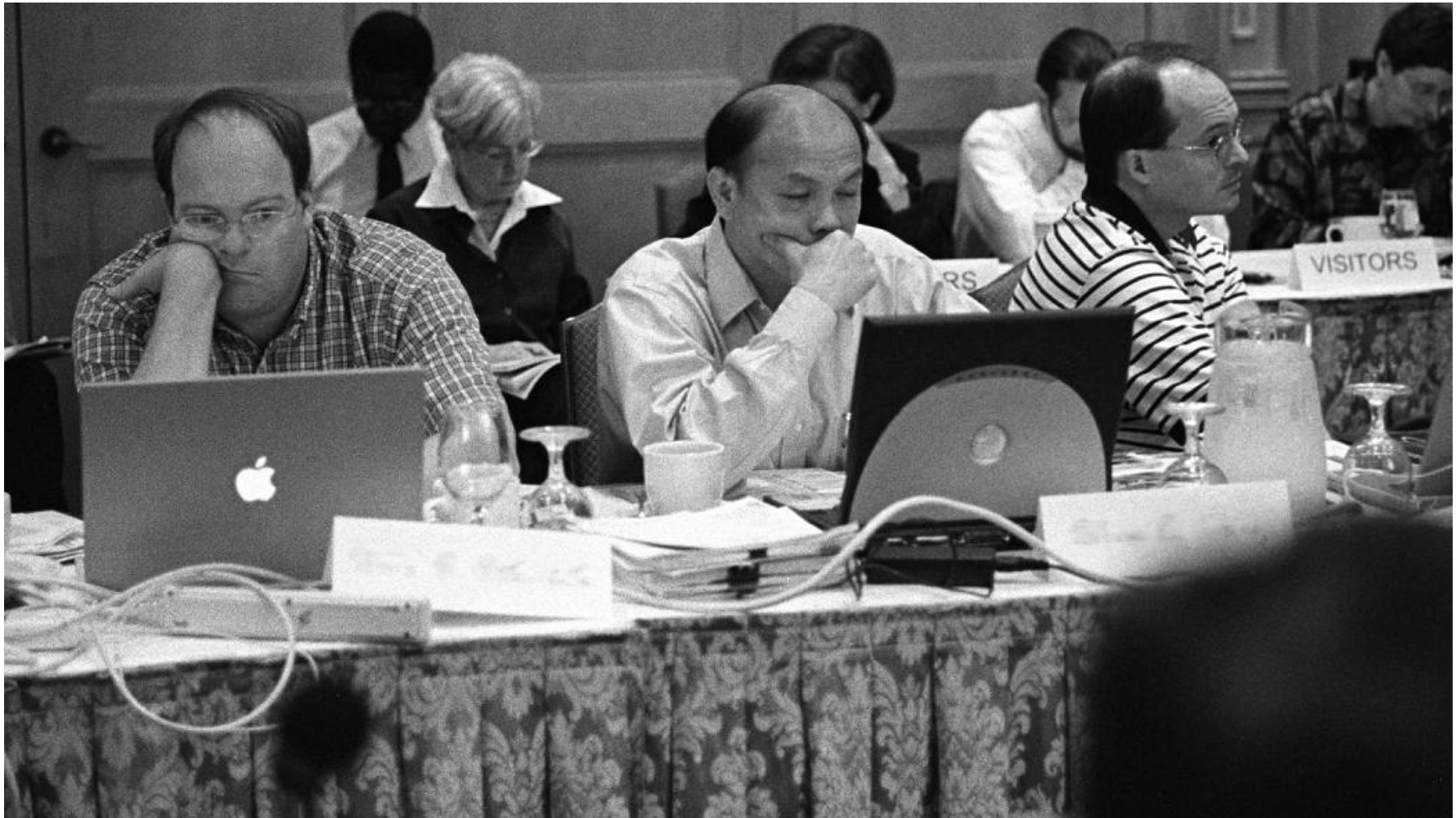
# How are applications scored?


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- 2 reviewers assigned to review in detail; others often only read abstract and aims page
- Each assigned reviewer is required to score each of the 5 core review criteria
- Each assigned reviewer gives a preliminary overall impact score (not an average or addition)
  - Performed prior to the meeting
  - Applications are ranked by the overall impact score – only the upper half are discussed
- Discussed applications are then assigned a final impact score by each member of the panel and averaged









# What do the 1-9 scores mean?

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Impact	Score	Descriptor	Additional Guidance
High	1	Exceptional	Exceptionally strong with essentially no weaknesses
	2	Outstanding	Extremely strong with negligible weaknesses
	3	Excellent	Very strong with only some minor weaknesses
Medium	4	Very Good	Strong but with numerous minor weaknesses
	5	Good	Strong but with at least one moderate weakness
	6	Satisfactory	Some strengths but also some moderate weaknesses
Low	7	Fair	Some strengths but with at least one major weakness
	8	Marginal	A few strengths and a few major weaknesses
	9	Poor	Very few strengths and numerous major weaknesses



# Writing Tips: Getting ready

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## ■ Plan ahead

- 6 months pilot work + research question
- 6 months writing the grant
- Involve mentor / co-investigators with warning

## ■ Write and revise a 1-2 pg **concept paper**

- Share ahead of every meeting
- Revise between meetings
- This will become Specific Aims section . . .

# Writing Tips

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- Tell a story . . .
  - Build your argument
  - Help reviewers care
- Punctuate key points
  - Write the Aims first....and Last.
  - You are writing a prose poem - use subheads/bold key sentences that structure the argument.
- Use a conceptual framework and model
  - Diagram cause-effect or temporal relations
  - Make the link between aims and products clear



# New Investigators: You are the next generation!

- NIH website for new investigators:

[http://grants.nih.gov/grants/new\\_investigators/](http://grants.nih.gov/grants/new_investigators/)

**New Investigator:** has not previously competed successfully as PD/PI for a substantial NIH independent research award.

New and **Early Stage Investigator** Policies:

Early Stage Investigators are within 10 years of completing their terminal degree or medical residency.



# Tips for the Junior Investigator

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- **Find a MENTOR**
- **Interdisciplinary** collaboration is a **MUST!**
- Know the experts in the “niche area” you are investigating
  - Begin to develop these relationships, citation index today
- Make sure you are getting Funding Opportunity Announcements (FOA) & Program Announcements (PA)
  - Sign up for alerts through Pivot (see GFIS for more info)
- Seek and build a Research Team early in your career
  - NEVER write a grant alone – you will burn out early on!



## Final word: Resilience & Perseverance

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### ■ Self inventory

- Identify your strengths and capacities
- Identify where you need complementary skills
- What kind of team or mentor do you need
- What are you passionate about?

### ■ Balance

- Find ways to refresh and sustain yourself.
- This is a marathon, not a sprint!

# Know this website!

<http://grants.nih.gov/grants/oer.htm>



U.S. Department of Health & Human Services

Office of Extramural Research  
National Institutes of Health

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### About Grants

**Grants Process**

- Grants Process Overview
- Grant Application Basics
- Types of Grant Programs
- How to Apply
- Peer Review Process
- Award Management
- Foreign Grants Information
- NIH Financial Operations (w/Funding Strategies)

**Electronic Grants**

- Electronic Research Admin (eRA)
- eRA Commons
- Applying Electronically

### Funding

**Funding Opportunities**

Search *NIH Guide for Grants and Contracts*

- Funding Opportunities & Notices
- Unsolicited Applications (Parent Announcements)

- Recovery Act Grant Information
- Research Training & Career Development
- Small Business (SBIR/STTR)
- Contract Opportunities
- NIH Loan Repayment Programs
- Challenge.gov

**NIH-Wide Initiatives**

- New and Early Stage Investigators
- Stem Cell Information
- NIH Common Fund
- OppNet (Behavioral & Social Sciences)

**Award Data**

- Search NIH Awards (RePORTER)
- NIH Data Book
- Reports, Data & Analyses (RePORT)

### Grants Policy

- Policy & Guidance
- Compliance & Oversight
- Research Involving Human Subjects
- Office of Laboratory Animal Welfare (OLAW)
- Peer Review Policies & Practices

### Forms & Deadlines


- Forms & Applications
- Due Dates & Submission Policies
- Submitting Your Application

### About OER

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- OER Offices
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# And this one!

[commons.lib.washington.edu/services/gfis](https://commons.lib.washington.edu/services/gfis)

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UNIVERSITY of WASHINGTON  
Research Commons

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The Graduate School's  
List of Fellowship  
Deadlines

UW Employment  
Opportunities

Workshop Materials

[Home](#) → [Services](#) → [Graduate Funding Information Service \(GFIS\)](#)

## Graduate Funding Information Service (GFIS)

The Graduate Funding Information Service (GFIS) works with current and admitted UW graduate students. GFIS helps students identify and use different resources to locate funding opportunities for graduate school-related expenses including tuition, research, and conference and research travel. In conjunction with the University of Washington's Graduate School, GFIS hosts a series of workshops throughout the year. Students can also seek answers to their questions during drop-in advising hours, can schedule individual appointments, or can request information by email. In addition, GFIS maintains a subject guide that lists different funding resources by category and a blog that informs students about fellowships, grants, employment opportunities, and upcoming GFIS events. As time allows, GFIS also works with individual departments to design discipline-specific workshops and resources for their graduate students.

### GFIS Resources

#### [GFIS Funding Resources Subject Guide](#)

- ▶ [Links to Campus Funding Resources](#)
- ▶ [Links to Funding Databases](#)
- ▶ [Links to Fellowship and Grants Opportunities](#)
- ▶ [Search by Academic Level, Discipline, or Category](#)

#### [GFIS Funding Blog](#)

- ▶ [Funding Announcements](#)
- ▶ [Upcoming GFIS Workshop Information](#)

#### [GFIS Workshop Materials](#)

- ▶ [Handouts from Previous Workshops](#)
- ▶ [Links to Audio/Video Recordings of Select Workshops](#)

### Contact Us

#### [Spring 2013 Drop-In Advising Hours](#)

[Research Commons, Allen Library South, Office G86A](#)

Tuesdays 3:00 - 5:00 p.m.

Thursdays 12:00 - 2:00 p.m.

April 2 - June 6, 2013

#### [Appointments](#)

Schedule an in-person or Skype appointment with [Anna Shelton](#), Graduate Funding Information Service Manager.

#### [Advice by Email](#)

Not in the Seattle area? Brief reference and advising is available. Contact [GFIS](#).



# Thank You! Questions?

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Thanks to our Graduate School staff for supporting this webinar, and to Helene Starks, faculty in Bioethics& Humanities for sharing her experience.

Slides will be posted on our Core Programs website following the webinar today:

<http://www.grad.washington.edu/profdev/>

Please contact me if you have any questions:

[edwards@uw.edu](mailto:edwards@uw.edu)