Graduate Fellowship and Scholarship Information Session

With a focus on:
NSF GRFP

May, 2010
Graduate Student Funding

Sources of Funding:

– Teaching Assistantships
  • For public institutions, TAs are often financed with state government funds.

– Research Assistantships
  • Financed by the research adviser’s research grants.

– Fellowships
  • Financed by gifts/endowments.
  • Student may spend time on coursework or their own research instead of working.
Generic Advice for Undergraduates

• Take courses that will enrich your academic career and/or are of interest to you.
• Avoid large lecture classes whenever possible; but if it can't be helped, be sure that you take advantage of the professor's office hours.
• Get involved in significant extra-curricular and service activities.
• Develop mentoring relationships with faculty, staff, and your peers.
• Get to know your advisor and department faculty.
• Go to faculty office hours and discuss academic and social concerns and interests.
• Seek out research and/or independent study opportunities.
• Explore & develop your various interests and talents—don't be shy and don't let unique or interesting opportunities pass you by.
• Use your summers wisely: partake in research, internships, and community service projects in the US or abroad. Consider applying for an REU (Research Experience for Undergraduates).
Year-Specific Advice

• Freshman and Sophomore Years:
  – It’s not too early to start thinking about research and building relationships with faculty members.
  – Get involved with extracurricular activities now, so that you can take a leadership role later.

• Junior Year:
  – Do an honors thesis or other major research or independent study project.

• Junior and Senior Years:
  – Gather information about where you might want to do graduate studies.
  – Start applying for scholarships and fellowships
  – Consider drafting your personal statement and research statement so that you have them on file for applications.
A Few Prestigious Federal Fellowships

- NSF Graduate Research Fellowship Program
- National Defense Science and Engineering Graduate Fellowship (NDSEG)
- DOE Computational Science Graduate Fellowship
- National Physical Science Consortium Graduate Fellowship
- NASA Aeronautics Scholarship Program
- NASA Graduate Student Researchers Program
- http://www.topscholars.illinois.edu/prestigious/index.html
The National Science Foundation

Federal agency created in 1950 to “to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense”

Over $6 billion annual budget for research and education in Science, Technology, Engineering and Math (STEM) disciplines - all fields but clinical biomedical (NIH)
Initiated in 1952 – oldest NSF program

Has served over 44,000 students including FY2009 awards

Currently ca. 3500 fellows; ca. 2800 on “tenure” (taking stipend and cost of education)

Very successful students - high rates of Ph.D. completion, shorter time to degree completion, high placement in faculty positions, high levels of research productivity, >20 Nobel laureates, etc.
The NSF Graduate Research Fellowship Provisions

Three years of support over a five year period

Annual stipend of $30,000 - cost of living

Tuition support of $10,500 - cost of education allowance paid to institution - remainder normally covered by university

$1,000 one-time international travel allowance

Cyberinfrastructure access via the TeraGrid
The NSF Graduate Research Fellowship

Portable to graduate institutions in US or abroad

Flexible - your choice of project, advisor, department

No service requirement (national lab or military)

Honorable Mention for meritorious applications (includes Cyberinfrastructure resources)

Specific programs to support underrepresented populations (only WCS and WIE)
The NSF Graduate Research Fellowship

There were 9013 eligible applications last year.

Typically awarded to about 1,000 students per year – will triple between now and 2013. For AY 2010-2011, there have been 2001 fellowships awarded.

Success rate has been about 14%, but we should see that rate increase. CS typically has a slightly higher success rate.

CISE receives about 5% of the fellowships. 103 in this category for AY 2010-2011

Applications are not shared with schools.
GRF Eligibility Criteria

Academic level

Level 1 - Seniors, baccalaureates with no graduate study
Level 2 - First-year graduate students
Level 3 - Second-year grad students (12 months of graduate study or less by Aug 31 prior to submission)
Level 4 - >12 months graduate study - change in field

Citizenship

U.S. Citizen, National or Permanent Resident

Discipline

Research-based Masters or PhD in NSF-Supported Field
NSF-Supported Disciplines

Chemistry
Computer and Information Science and Engineering
Engineering
Geosciences
Life Sciences
Mathematical Sciences
Physics and Astronomy
Psychology (non-clinical)
Social Sciences (non-clinical)
Application Materials - GRFP FastLane

Personal Statement Essay (2 pgs incl figs)

Previous Research Experience Essay (2 pgs incl figs)

Proposed Plan of Research Essay (2 pgs incl figs)

Completed Graduate Study Essay (For Level 4)

Three Letters of Reference

Transcripts

GRE Scores (Optional but “Highly Recommended” by Dr. Hahn)
Intellectual Merit Criterion

How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of prior work.) To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

Academic performance & background (grades, curricula, GRE)
Awards/honors
Communication skills
Research experience
International experience
Independence/creativity
Publications/presentations
Research plan
Choice of institution
References
Broader Impacts Criterion

How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

Prior accomplishments
Community outreach
Impact on society and connectivity
Future plans
Leadership potential
Individual experiences
Integration of research and education
Potential to communicate to diverse audiences
Personal Essay

Two pages—often the hardest thing to write

Make certain to discuss:
  Your motivation for research and particular choice of field
  Examples of leadership skills and unique characteristics you bring (avoid arrogance)
  How the GRFP will assist you with career goals

Provides opportunity for evaluators to see you as a person

Opportunity to respond to broader impact merit criterion
Previous Research Experience Essay

Emphasize experience relevant to your proposal but include all examples of “research”, even if not in field

List experience with hypothesis formulation and testing, experimental design, data management and analysis, interpretation of results, dissemination of findings

Highlight what you did (independence) but discuss collaborators (teamwork) and leadership

List any publications, posters, presentations, prizes, awards, grants, special recognition, etc.
Proposed Research Essay

Introduce general theory or area of study and importance - a few references will demonstrate your understanding of field

Describe your motivation to go into that area

Discuss your plans to prepare yourself for that field of study - mention school(s), degree programs, potential advisor, etc.

Spell out specific details of your research and study plan but avoid jargon, specific experimental details, etc.

Comment on the broader impacts of your activities

Let the reader know of your career plans, even if tentative

Demonstrate flexibility ("plan B")
Other Essay Pointers

• If you have an adviser, work with them on your research statements.
• Essays should stand on their own; avoid self-references/dependencies.
• Use a minimum of citations.
• Be genuine. Be occasionally passionate, but not over the top.
• Avoid tangents/diversions; stay on point.
• Personal Essay: it may be helpful to emphasize a thread that runs through your whole life.
• Ideally, start on the application 3 months before the deadline.
Letters of Reference

Three required - should know you as scientist and person

Will compare you with NSF Graduate Research Fellows & other successful students they have known based on: potential to make unique contributions to discipline; ability to conduct original research; leadership potential; productive member of scientific community; originality of plan of study

Will state their role in assisting with the application

Provide referees sufficient time; share application materials with them; ask for advice

Track letters on FastLane - remind referees about deadline
Panel Review of Applications

Evaluated by Level but no limits on numbers from each Level. Long term success: Level 1 > Level 2 > Level 3 > Level 4.

Panelists are experts in general field, but may not be experts in your specific research specialty - avoid jargon

Evaluated by 2 panelists, additional review for higher ranked applications - scored, then ranked by average of scores

Panelists complete rating sheet regarding intellectual merit and broader impacts criteria highlighting strengths and areas for improvement - provided to eligible applicants

NSF uses ranking and other factors (e.g., URM) to determine awardees and recipients of honorable mention
NSF Contact Information

Operations Center, Outreach, Helpdesk:

http://www.nsfgrfp.org

866-NSF-GRFP (673-4737) help@nsfgrfp.org

NSF GRF description, solicitation (09-603), and links:

http://www.nsf.gov/grfp/

Online Application, User Guides, and Official Announcements:

http://www.fastlane.nsf.gov/grfp/
Local Support

National and International Scholarships Program: 
http://www.topscholars.illinois.edu/
http://www.topscholars.illinois.edu/resources/campus.html

Graduate College Fellowships Database
http://www.grad.illinois.edu/fellowship/

Ken Vickery, Director of External Fellowships, Graduate College. Reviews application materials on a one-on-one basis

Tim Weninger’s Winning Essays:
http://www.cs.illinois.edu/homes/weninge1/research.html

Graduate College Workshops:
http://illinois.edu/calendar/Calendar?callId=116
# Agora Student Awards Space

http://agora.cs.illinois.edu/x/ICY

## Information on Student Awards, Scholarships, and Fellowships

1) **Awards Which Require Department of Computer Science Action/Selection:**

<table>
<thead>
<tr>
<th>Title (Link)</th>
<th>Internal Deadline (5pm, unless specified)</th>
<th>External Deadline</th>
<th>Who?</th>
<th>Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACM Doctoral Dissertation Competition / David J. Kuck Thesis Awards</td>
<td>9/30/2009</td>
<td>10/30/2009</td>
<td>Those who deposited (or will deposit) a Ph.D. or M.S. dissertation between September 1, 2008 and September 30 2009.</td>
<td>$20,000 for winner, $10,000 for honorable mention (ACM Award). Small cash awards for the Kuck awards.</td>
</tr>
<tr>
<td>CRA Outstanding Undergraduate Award</td>
<td>10/2/2009</td>
<td>10/13/2009</td>
<td>Undergraduate students who show outstanding research potential in an area of computing research. Preference is given to seniors.</td>
<td>$1,000, travel to a major conference.</td>
</tr>
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2) **External Awards.**

A listing of various computer science, engineering, and University of Illinois-related awards that require no official Department of Computer Science sanction for a student to apply.