The NSF Graduate Research Fellowship Program
## UC Davis Introductions

### October 9, 2012

<table>
<thead>
<tr>
<th>Name</th>
<th>Position and Details</th>
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<tbody>
<tr>
<td>Robert Berman</td>
<td>Professor of Neurol. Surg. &amp; Neuroscience Program, NSF Panel Member 2008-10 – Physiology &amp; Neuroscience</td>
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<tr>
<td>Ted Powers</td>
<td>Professor, Cellular and Molecular Biology, NSF Panel Member</td>
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<tr>
<td>Mark Schwartz</td>
<td>Professor of Environmental Science &amp; Policy, Center for Population Biology, Director of John Muir Institute, NSF GRFP (former) Officer</td>
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<tr>
<td>Louie Yang</td>
<td>Assistant Professor, Entomology, NSF Panel Member 2010, 2011</td>
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<td>Enoch Baldwin</td>
<td>Professor of Cellular and Molecular Biology</td>
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**UCD NSF GRFP Coordinator**  
**Deborah McCook**, Office of Graduate Studies, dlmccook@ucdaivs.edu
NSF GRFP Recipient Guest Speakers

October 10/9/12 - 10/10/12

Chris Cunningham  Neuroscience Program
Katherine Isaacs  Computer Science
Aimee Bryan  Chemistry
Lisa Anderson  Chemistry
Katie Holzer  Ecology
Randi Jimenez  Horticulture & Agronomy
Ciera Martinez  Plant Biology
Moria Robinson  Population Biology
NSF Graduate Research Fellowship Program Goals

- To increase the Nation’s human capacity in science and engineering by providing fellowships for early-career graduate students who pursue research-based master’s and doctoral degrees in NSF-supported disciplines.

- To support the development of a diverse and globally engaged US science and engineering workforce.
GRFP Successes

- 48,500 Fellowships awarded since 1952
- 30 Nobel Laureates
- 440 members of the National Academy of Sciences
- Founders of corporations to authors of books
- Higher Ph.D. completion rates
- Enhanced diversity
GRFP Key Elements

- Five Year Award – $126,000
- Three years of support
  - $30,000 Stipend per year
  - $12,000 Educational allowance to institution
- International research opportunities
- Access to XSEDE cyberinfrastructure resources
GRFP General Eligibility

- U.S. citizens, nationals, and permanent residents
- Early-career students
- Pursuing research-based MS or PhD in NSF fields
- Enrolled in accredited U.S. institution by Fall 2013
- Applicants must **self-certify in the application** that they meet the GRFP Eligibility criteria
• Chemistry
• Computer and Information Science and Engineering
• Engineering
• Geosciences
• Life Sciences
• Materials Research
• Mathematical Sciences
• Physics and Astronomy
• Psychology
• Social Sciences
• Science, Technology, Engineering and Mathematics Education (research-focused)
Not Supported by NSF GRFP

- Business administration or management
- Social work
- Medical, dental, law, or public health programs
- Joint science-professional degree programs, e.g., MD/PhD, JD/PhD, etc.
- Education (except research-focused STEM Education programs)
- **See Solicitation** (www.nsfgrfp.org)
• **Application**: Available online late August

• **Deadlines**: Mid-November (varies by field)

• **Awards**: Announced late March to early April

• **Best Time to Start Preparing**: Now
Applicant Deadlines 2012

- **November 13, 2012 (Tuesday):** Computer and Information Science and Engineering
- **November 13, 2012 (Tuesday):** Engineering
- **November 13, 2012 (Tuesday):** Materials Research
- **November 14, 2012 (Wednesday):** Chemistry
- **November 14, 2012 (Wednesday):** Mathematical Sciences
- **November 14, 2012 (Wednesday):** Physics and Astronomy
- **November 16, 2012 (Friday):** Psychology
- **November 16, 2012 (Friday):** Social Sciences
- **November 16, 2012 (Friday):** STEM Education and Learning
- **November 19, 2012 (Monday):** Geosciences
- **November 19, 2012 (Monday):** Life Sciences

- Applications Must Be Submitted by 8:00 pm Eastern Standard Time
NSF FastLane

- Personal statement (2 pages)
- Previous research experience (2 pages)
- Proposed plan of research (2 pages)
- Transcripts, uploaded into FastLane
- **Three** letters of reference required

- Additional information required for some candidates
  See Solicitation for eligibility requirements on www.nsfgrp.org
Two National Science Board-approved Review Criteria: (not specific application section)

- Intellectual Merit
- Broader Impacts
• How important is proposed activity to advancing knowledge and understanding within its own field or across different fields?
• How well qualified is the proposer to conduct the project?
• To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts?
• How well conceived and organized are proposed activities?
• Is there sufficient access to resources?
• If international activities are proposed, are they relevant and do they benefit applicant?
• Academic performance
• Research plan
• Appropriate choice of institution
• References
• Research experience
Broader Impact


• How well does the activity advance discovery and understanding while promoting teaching, training and learning?

• How well does the proposed activity broaden participation of underrepresented groups?

• To what extent will it enhance infrastructure for research and education?

• Will results be disseminated broadly?

• What may be the benefits of proposed activity to society?
Broader Impacts Assessment

- Prior accomplishments
- Future plans
- Individual experiences
- Potential to reach diverse audiences
- Potential benefit to society
Examples of Broader Impact

Advance discovery and understanding – promoting teaching, training & learning
• Integrate research activities into teaching of science, math, engineering at all levels
• Include students as participants in proposed research activities as appropriate.
• Develop research based educational materials
• Encourage student (all levels) participation at meeting and activities of professional societies
• Establish mentoring programs for high school students, undergrads, grad students, technicians

Broaden participation of underrepresented groups (women, underrepresented minorities, certain academic institutions and some geographic areas that are less than full participants in science
• Establish research and education collaborations with students and faculty who are underrepresented
• Include underrepresented students and groups in proposed research of educational activities.
• Mentor early career scientists and engineers from underrepresented groups
• Participate in workshops, conferences and field activities where diversity is a priority
• Establish collaborations with faculty and students at community colleges, colleges for women, undergraduate institutions.
Examples of Broader Impact

Benefits to society
- Contribute to public understanding of the environment, commercial technology, public policy, health or safety or other aspects of public welfare.
- Explain the potential application of research and/or education results for the benefit of society
- Provide information for policy formulation by Federal, State or local agencies.
- Communicate research and education results in formats understandable and useful for non-scientists.
- Integrate research with federal agencies and the private sector

Enhance infrastructure for research and education
- Establish collaborations between disciplines and US academic institutions, industry and with International partners.
- Stimulate and support development of next generation instrumentation, new software multi-user facilities, other shared research and education platforms.
Examples of Broader Impact

Broad dissemination to enhance scientific and technological understanding

• Partner with museums, nature centers, science centers to develop exhibits in science, engineering and math.
• Give science and engineering presentations to the broader community (libraries, radio shows)
• Make research findings available in timely manner (publications and presentations)
• Publish in diverse media (e.g., non-technical literature, websites, press kits, CD-ROM’s) to reach broad audiences.
• Present research and education results to policy makers (Congress, industry)
• Involve the public or industry in research and education activities.
Preparing a competitive application

Personal Statement (limit: 2 Pages)

• Describe personal, professional or educational experiences that have contributed to your preparation and desire to pursue graduate study

• Describe your leadership potential, and how you see yourself now or in the future contributing to research, education, and innovations in science and engineering

• Discuss your career aspirations and some goals you hope to achieve
Preparing a competitive application

Previous Research Experience Essay (Limit: 2 Pages)

• Describe any scientific research activities you have participated in, and what you learned from this experience

• Explain the purpose of the research and your role, including the extent to which you worked independently and/or as part of a team

• If you have no direct research experience, describe any activities that you believe have prepared you to undertake research
Preparing a competitive application

**Proposed Research Plan (Limit: 2 Pages)**

- Present a complete plan for a research project that you plan to pursue, demonstrating your understanding of research design and methodology.
- Explain the relationship to your previous research, if applicable.
- Address the Intellectual Merit and Broader Impacts of your proposed plan.
- Research topics in your proposed plan must be in fields within NSF’s mission.
Preparing a competitive application

Reference Letters

• Choose at least three reference writers
• Give them ample time to prepare their letters
• They should know you as a scientist and personally
• Share your application materials and the merit review criteria (good letters address Intellectual Merit and Broader Impacts)
• Track letter submission using FastLane; you must have 3 letters for a complete application
Preparing a competitive application

1. Read the Solicitation carefully
2. Address the two NSF Merit Review Criteria (Intellectual Merit and Broader Impacts)
3. Check for spelling and grammatical errors
4. Verify essays and transcripts uploads
5. You must certify that this is your own original work
6. You must self-certify your eligibility according to the criteria in the Solicitation
7. Make sure you Press “Submit” button
8. Regularly check application status for # of reference letters
9. Make sure you are enrolled in graduate school by Fall 2013
**Evaluation of applications**

- 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.
- NSF requests panelists to provide constructive comments (applicants may view).
- Panels make recommendations to NSF.
- NSF awards fellowships and honorable mentions.
Besides constructive feedback, the application is great preparation for:

- Graduate school applications
- Other award applications
- Job applications
- Writing publications
- Professional connections

2012
2,000 Awards
12,000 Applications
~ 17% Success

You are encouraged to apply
NSF GRFP Website (nsf.gov/grfp)

- Solicitation
- FAQ and Guide links

Fastlane.nsf.gov/grfp

- Online application, user guides, official announcements

Phone and email

- 866-NSF-GRFP (673-4737)
  info@nsfgradfellows.org
UCD MENTORS

NOTE: MENTORING AVAILABILITY IS AT THE DISCRETION OF THE MENTOR

- Alan L. Balch, Distinguished Professor, Chemistry albalch@ucdavis.edu
- Enoch Baldwin, Professor of Cellular and Molecular Biology, epbaldwin@ucdavis.edu
- Robert Berman, Professor, Neurological Surgery rberman@ucdavis.edu
- Patricia Boeshaar, Senior Lecturer, Physics boeshaar@physics.ucdavis.edu
- Tom Cahill, Professor Emeritus, Physics bahorwitz@ucdavis.edu
- Debbie Elliott-Fisk, Professor, Wild, Fish & Conservation Biology, dielliottfisk@ucdavis.edu
- Barbara Horwitz, Professor, Neurobiology, Physiology & Behavior, bahorwitz@ucdavis.edu
- Lynne Isbell, Professor, Anthropology (Evolutionary Wing) laisbell@ucdavis.edu
- Suad Joseph, Professor, Anthropology, Women & Gender Studies, sjoseph@ucdavis.edu
- Anne A. Knowlton, Professor, Cardiovascular Division, aaknowlton@ucdavis.edu
- Peter Lindert, Professor Emeritus, Economics phlindert@ucdavis.edu
- Kai Liu, Associate Professor, Physics kailiu@ucdavis.edu
- Jay R. Lund, Professor, Civil and Environmental Engineering, jrlund@ucdavis.edu
- Ted Powers, Professor, Cellular and Molecular Biology, tpowers@ucdavis.edu
- William Skinner, Professor, Anthropology, gwskinner@ucdavis.edu
- Neil Schore, Professor, Department of Chemistry, neschore@ucdavis.edu
- Mark Schwartz, Professor of Environmental Science & Policy | Population Biology mwschwartz@ucdavis.edu
- Dewey Ryu, Professor, Chemical Engineering & Material Science, ddyryu@ucdavis.edu
- Aram Yengoyan, Distiguished Professor, Anthropology aayengoyan@ucdavis.edu
- Phillip R. Shaver, Distinguished Professor, Psychology, prshaver@ucdavis.edu
- Louie Yang, Assistant Professor, Entomology lhyang@ucdavis.edu