The NSF Graduate Research Fellowship Program
### UC Davis Introductions

#### October 4, 2013

<table>
<thead>
<tr>
<th>Name</th>
<th>Title and Affiliation</th>
<th>NSF GRFP Role and Years</th>
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<tbody>
<tr>
<td>Ted Powers</td>
<td>Professor, Molecular and Cellular Biology</td>
<td>NSF GRFP Panel Member 2006 - Biochemistry and</td>
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<td>2007-2010, 2012 - Cell Biology</td>
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<tr>
<td>Robert Berman</td>
<td>Professor of Neurological Surgery</td>
<td>UCDHS: MIND Institute</td>
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<tr>
<td>Enoch Baldwin</td>
<td>Professor of Cellular and Molecular Biology</td>
<td>NSF GFRP Panel Member 2008-10</td>
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<td>NSF GRFP Panel Chair 2011-13 Biochemistry, Biophysics &amp; Structural Biology</td>
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<tr>
<td>Deborah McCook</td>
<td>Senior External Fellowship Advisor, UCD NSF GRFP Coordinator</td>
<td>Office of the Vice Provost and Dean of Graduate Studies</td>
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<td>email: <a href="mailto:dlmccook@ucdaivs.edu">dlmccook@ucdaivs.edu</a></td>
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<tr>
<td>Name</td>
<td>Discipline</td>
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<tr>
<td>Johnathon Anderson</td>
<td>Genetics</td>
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<tr>
<td>Mina Azimi</td>
<td>Cell and Developmental Biology</td>
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<tr>
<td>Anahita Hamidi</td>
<td>Neuroscience</td>
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<td>Randi Jimenez</td>
<td>Horticulture &amp; Agronomy</td>
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<td>Rene Johnson</td>
<td>Chemistry</td>
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<td>Ciera Martinez</td>
<td>Plant Biology</td>
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<tr>
<td>Meghan Murphy</td>
<td>Biomedical Engineering</td>
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<td>Hoby Wedler</td>
<td>Chemistry</td>
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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 – $132,000
- Three years of support
  - $32,000 Stipend per year
  - $12,000 Educational allowance to institution
- International research opportunity through GROW
- 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 2014

Applicants must self-certify in the application that they meet the GRFP Eligibility criteria.
GRFP Supported Disciplines

- 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)
GRFP Cycle

- **Application**: Available online
- **Deadlines**: Early November (varies by field)
  
  Letter Writer Deadline: November 14, 2013
- **Awards**: Announced late March to early April
- **Best Time to Start Preparing**: Now
Applicant Deadlines 2013

**November 4, 2013:** Computer and Information Sciences and Engineering
                      Engineering
                      Materials Research

**November 5, 2013:** Chemistry
                      Mathematical Sciences
                      Physics and Astronomy

**November 7, 2013:** Psychology
                      Social Sciences
                      STEM Education and Learning

**November 8, 2013** Geosciences
                      Life Sciences

~ Applications Must Be Submitted by 8:00 pm Eastern Standard Time ~
Complete Application

NSF FastLane changes from last year highlighted

- Personal, Relevant Background and Future Goals Statement (3 pages)
- Graduate Research Statement (2 pages)
  (Prior Years: Personal statement, Previous research experience, Proposed plan of research - 2 pages each)
- Transcripts (all undergrad and most recent grad) uploaded into FastLane
- Three letters of reference required
- Additional information required for some candidates
  (See Solicitation for eligibility requirements on www.nsfgrfp.org)
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
Resources at nsfgrfp.org

- Tips for applying
- Frequently asked questions (FAQ)
- Find GRFP contacts
- Important links for the GRFP
- Panelist registration
Two National Science Board-approved Review Criteria:

- **Intellectual Merit**: this criterion encompasses the potential to advance knowledge

- **Broader Impacts**: this criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes
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); and
   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?
Intellectual Merit and Broader Impacts Assessment

- Personal, Relevant Background and Future Goals Statement
- Graduate Research Statement
- Reference Letters
- Transcripts
Panelists may consider the following with respect to the **Intellectual Merit** Criterion:

- the potential of the applicant to advance knowledge based on the totality of the content in the application, including the strength of the academic record, the proposed plan of research, the description of previous research experience or publication/presentations, and references.
Broader Impacts Assessment

- Prior accomplishments
- Future plans
- Individual experiences
- Potential to reach diverse audiences
- Potential benefit to society
• 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?
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.
How do you envision graduate school preparing you for a career that allows you to contribute to expanding scientific understanding as well as broadly benefit society? Describe your personal, educational and/or professional experiences that motivate your decision to pursue advanced study in science, technology, engineering or mathematics (STEM). Include specific examples of any research and/or professional activities in which you have participated. Present a concise description of the activities, highlight the results and discuss how these activities have prepared you to seek a graduate degree. Specify your role in the activity including the extent to which you worked independently and/or as part of a team. Describe the contributions of your activity to advancing knowledge in STEM fields as well as the potential for broader societal impacts (See Solicitation, Section VI, for more information about Broader Impacts).
Present an original research topic that you would like to pursue in graduate school. Describe the research idea, your general approach, as well as any unique resources that may be needed for accomplishing the research goal (i.e., access to national facilities or collections, collaborations, overseas work, etc.) You may choose to include important literature citations. Address the potential of the research to advance knowledge and understanding within science as well as the potential for broader impacts on society. The research discussed must be in a field listed in the Solicitation (Section X, Fields of Study).
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 2014
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 receive anonymous copies of the reviews).
- Panels make recommendations to NSF.
- NSF awards fellowships and honorable mentions.
You are encouraged to apply

Besides constructive feedback, the application is great preparation for:

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

2013
2,000 Awards
12,000 Applications
~ 17% Success

You are encouraged to apply

National Science Foundation Graduate Research Fellowship Program
Apply at: www.fastlane.nsf.gov/grfp/
<table>
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<tr>
<th>Year</th>
<th>Total Fellows</th>
<th>New</th>
<th>Continuing</th>
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<td>2011-12</td>
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<td>2009-10</td>
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<td>2008-09</td>
<td>34</td>
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**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 FACULTY 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
  rfbberman@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
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- **Barbara Horwitz**, Professor, Neurobiology, Physiology & Behavior
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- **Lynne Isbell**, Professor, Anthropology (Evolutionary Wing)
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- **Suad Joseph**, Professor, Anthropology, Women & Gender Studies
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- **Anne A. Knowlton**, Professor, Cardiovascular Division
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- **Peter Lindert**, Professor Emeritus, Economics
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- **Kai Liu**, Associate Professor, Physics
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- **Jay R. Lund**, Professor, Civil and Environmental Engineering
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- **Ted Powers**, Professor, Cellular and Molecular Biology
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- **Neil Schore**, Professor, Department of Chemistry
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- **Mark Schwartz**, Professor of Environmental Science & Policy | Population Biology
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- **Dewey Ryu**, Professor, Chemical Engineering & Material Science
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- **Aram Yengoyan**, Distinguished Professor, Anthropology
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- **Phillip R. Shaver**, Distinguished Professor, Psychology
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- **David Smith**, Professor, Anthropology
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- **Louie Yang**, Assistant Professor, Entomology
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National Science Foundation Graduate Research Fellowship Program
Information: [www.nsf.gov/grfp](http://www.nsf.gov/grfp) and [www.nsfgrfp.org](http://www.nsfgrfp.org)
UCD FELLOW MENTORS
NOTE: MENTORING AVAILABILITY IS AT THE DISCRETION OF THE MENTOR

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- Carmen Cortez, Ecology
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- Anahita Hamidi, Neuroscience
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- Randi Jimenez, Horticulture & Agronomy
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- Ciera Martinez, Plant Biology
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- Meghan Murphy, Biological Engineering
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- Jenna Rodriguez, Hydrologic Sciences
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- Alex Webster, Biogeochemistry/Ecology
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- Henry “Hoby” Wedler, Chemistry
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