

Guidance for UCSD Principal Investigators on NSF's New Requirement: Mentorship of Postdoctoral Scholars

Mentorship of postdoctoral scholars (PDSs) takes many forms. These include: one-on-one, mentor-PDS interaction; engagement of PDSs in the formal and informal activities of the research group; and encouragement of PDSs to take advantage of professional development opportunities.

Principal Investigators (PIs) are instructed to describe PDS mentoring in a separate section of the 15-page NSF Project Description. Note that proposed mentoring activities are evaluated under the [*Broader Impacts merit review criterion*](#). Thus, a well-conceived PDS mentorship plan may serve both to address the new mentoring requirement as well as the Broader Impacts requirement.

The bulleted text below illustrates some of the many mentorship activities PIs may propose. PIs are encouraged to customize, embellish, bundle and otherwise modify these statements for use in NSF proposals that request funding support for PDSs.

- In addition to frequent one-on-one meetings with the PI, the PDS will participate in weekly lab meetings and be encouraged to attend regular departmental seminars throughout the academic year.
- The PI will make the PDS aware of and encourage her/his participation in professional development activities – seminars, workshops, courses and events – offered by UC San Diego's [Office of Postdoctoral Scholar Affairs](#), [Center for Teaching Development](#), [Research Ethics Program](#), and [Career Services Center](#). These campus organizations provide extensive training opportunities in research skill-development, communication, scientific and public presentation, teaching, grant writing, responsible conduct of research, project management, and job-search strategies.
- The PI will ensure that the PDS gains experience in both scientific manuscript preparation as well as research proposal development, including budget preparation. The PI will provide editorial as well as technical guidance. Both PDS and PI will draw on the resources available through the UCSD Office of Research Affairs' [Grant Writer's Toolbox](#). The PDS will also be encouraged to take advantage of skill-building opportunities such as training in the use of **give name of** software and databases offered by campus library staff. **See UCSD and SIO Library instruction links below.**
- The PI will work closely with the PDS on the development of an abstract and subsequent presentation of his/her research at the **name of professional society meeting, with dates and location, if known**. The PDS will be encouraged to access resources on the preparation and delivery of scientific talks, such as the online publication [Scientifically Speaking: Tips for Preparing and Delivering Scientific Talks and Using Visual Aids](#) **or choose from other resources under Guidance on**

Scientific Presentation below. Conference participation will provide valuable professional networking opportunities. At the conference, the PI will personally introduce the PDS to leaders in the fields of **names of fields here**.

- The PI will encourage the PDS to apply to attend the international [Gordon Research Conference](#) (GRC) on **conference title, dates and location here**. The GRCs have been recognized as among the world's premier scientific conferences, where leading investigators from around the globe discuss their latest work and future challenges in a uniquely informal, interactive format. The GRC is committed to providing a forum for career networking and career advancement as well as supporting and encouraging young scientists as they establish initial scientific and personal contacts.
- The PDS will have opportunities to gain teaching, presentation and outreach experience. S/he will give a classroom lecture in the PI's graduate course, **course name here**, as well as present an academic seminar in the **seminar series name here**. The PDS will also have opportunities to engage in the lab's public outreach activities, including **describe outreach briefly here**.
- In the interest of developing his/her supervisory and mentoring skills, the PDS will be given opportunities to assist in the supervision of the lab's **number of** graduate and **number of** undergraduate students.
- On an ongoing basis, the PI will inform the PDS of in-person and on-line networking opportunities. Such opportunities are available locally through the [UCSD Postdoctoral Association](#), and nationally through the [National Postdoctoral Association](#). In addition, the nonprofit [MentorNet](#) offers web-based discussion groups on topics such as work/life balance, job-hunting, and diversity. UCSD is among more than 100 MentorNet campus-participants.
- The PI will help the PDS secure and make a successful transition to independent, academic employment. Drawing on her/his own experiences as well as community guidance and resources such as *The Chronicle of Higher Education's* [Chronicle Forums](#) on careers (another example is the [Career Resources](#) page of the [Dissertation Initiative for the Advancement of Climate Change Research](#)) the PI will help the PDS prepare for job interviews and seminars, evaluate potential academic positions, and negotiate start-up packages.

The passage above reflects the needs of PDSs who seek academic employment. PDSs who seek non-academic employment, for example in industry or government, could benefit from other kinds of transition assistance.

- *Of possible interest to life-scientists:* The PI will encourage the PDS to participate in programs and activities offered by [The Scripps Research Institute](#) (TSRI). These include TSRI's: 1) Society of Fellows, a nonprofit, volunteer organization that encourages both professional and social exchange among TSRI PDSs and those from other academic institutions in the San Diego area; 2) Network for Women in Science

that holds monthly meetings and provides support, guidance, and opportunity for female scientists; and 3) Career and Postdoctoral Services Office that offers seminars and workshops on topics of interest to early-career scientists.

- *If the identity of the PDS is known at the time of proposal preparation – sometimes but not always the case – PIs may incorporate specific skill-building elements into the mentorship plan in addition to the more broadly applicable activities above. Examples of customized skill-building activities are English-language instruction, if needed (available through UCSD Extension's [English Language Institute](#)), and training in analytical methods in which a PDS is inexperienced.*

Read on for more information about the organizations and programs mentioned above.

UCSD Office of Postdoctoral Scholar Affairs <http://research.ucsd.edu/postdoc/>
Annual (January) San Diego Lab Management Symposium
<http://research.ucsd.edu/postdoc/events/labmgmt2009/index.html>
Two-day workshop for PDSs and junior faculty on managing research programs

UCSD's Center for Teaching Development, <http://ctd.ucsd.edu/>, offers workshops in course design, grant-writing, teaching strategies, gender equity, evaluation and discussion techniques, among other topics.

UCSD Research Ethics Program <http://ethics.ucsd.edu/> offers several courses:

- a) Ethics and Survival Skills in Academia
<http://ethics.ucsd.edu/courses/survival/syllabus.html>
Cognitive Science / Neurosciences / Pathology 241: The primary objective of this course is to provide graduate students and PDSs with ideas and resources for achieving academic and career goals. The ethics component of the course can be used to satisfy NIH and NSF requirements for instruction in the responsible conduct of research.
- b) Scientific Ethics
<http://ethics.ucsd.edu/courses/ethics/syllabus.html>
The course is designed as an option for meeting current federal regulations, which require that all NIH training grants provide training in the responsible conduct of research.
- c) Ethics in Scientific Research
<http://ethics.ucsd.edu/courses/eisr/index.html>
PHAR/BIOM 219; same description as b) above

UCSD Career Services Center, <http://career.ucsd.edu/>, holds an Annual Business Week that includes skill-building programs and workshops on interviewing, resume writing and job-hunting.

UCSD Office of Research Affairs' Grant Writers Toolbox,
<http://research.ucsd.edu/surf/tools.html>, contains numerous guides to grant writing.

SIO Library Classes and Consultations

<http://www.ucsd.edu/portal/site/Libraries/menuitem.346352c02aac0c82b9ba4310d34b01ca/?vgnextoid=03c2d2905bd14110VgnVCM10000045b410acRCRD>

UCSD Library Instruction Services

<http://www.ucsd.edu/portal/site/Libraries/menuitem.f8a637dceded74c644c8fabad74b01ca/?vgnextoid=9d954b411a463110VgnVCM10000045b410acRCRD>

Guidance on Scientific Presentation

- Scientifically Speaking: Tips for Preparing and Delivering Scientific Talks and Using Visual Aids
http://tos.org/resources/publications/sci_speaking.html
- Office of Naval Research Tips for Preparing Scientific Presentations
http://www.onr.navy.mil/about/speaking_tips/
- Tips for Giving a Scientific Presentation
<http://www.fw.msu.edu/orgs/gso/documents/GSOWorkshopDocsSp2006/TipsforGivingaScientificPresentation.pdf>
- Resources for scientific presentations
<http://marcus.whitman.edu/~weilercs/TalkingTips/>

Gordon Research Conferences: Student/Post-Doc Resources

<http://www.grc.org/students.aspx>

The Gordon Research Conferences (GRC) provide an international forum for the presentation and discussion of frontier research in the biological, chemical, and physical sciences, and their related technologies. For over 75 years, GRC's meetings have been recognized as among the world's premier scientific conferences, where leading investigators from around the globe discuss their latest work and future challenges in a uniquely informal, interactive format. The GRC is committed to providing a forum for career networking and career advancement as well as supporting and encouraging young scientists as they establish initial scientific and personal contacts. Some 180 GRCs are scheduled for 2009: <http://www.grc.org/meetings.aspx?year=2009>

UCSD Postdoctoral Association

<http://pda.ucsd.edu/AboutUs.htm>

This Academic Advisory Group aims to enhance the postdoctoral experience at UCSD through professional development, fostering a sense of community and identity, and facilitating the integration of postdoctoral scholars into the research establishment.

National Postdoctoral Association,

http://www.nationalpostdoc.org/site/c.eoJMIWOBIrH/b.1388059/k.DBBE/NPA_Home.htm, website contains extensive resources for PDSs and mentors. NPA is a nonprofit, professional association that addresses issues confronting the postdoctoral community that are national in scope, requiring action beyond the local level.

MentorNet, <http://www.mentornet.net/>, a nonprofit e-mentoring network, focuses on retention and success of those in engineering, science and mathematics, particularly but not exclusively women and others underrepresented in these fields. MentorNet provides highly motivated protégés with positive, one-on-one, email-based mentoring relationships with mentors from industry, government, and higher education. UC San Diego is among the 108 participating university campuses. MentorNet E-Forum features web-based discussion groups for anyone interested in topics such as Work/Life Balance, Time Management, Career Options and Job Hunting.

***The Chronicle of Higher Education* and its online Chronicle Forums**, <http://chronicle.com/forums/index.php>, contain extensive materials on issues of interest to PDSs and their mentors: job-seeking, interviewing, grant-writing, publishing, diversity in the workplace, and working overseas.

Dissertation Initiative for the Advancement of Climate Change Research: Career Resources, <http://www.discrcs.org/career.html>, includes guidance for early-career scientists on job hunting, scientific management, proposal writing, mentoring and teaching.

The Scripps Research Institute:

- a) Career and Postdoctoral Services Office, <http://www.scripps.edu/services/postdocs/>, provides career development programs for PDSs. Many seminars and workshops are open to those at UCSD. See: <http://www.scripps.edu/services/postdocs/career/workshops.html>
- b) Society of Fellows, <http://www.scripps.edu/services/sof/>, a nonprofit, volunteer organization, encourages both professional and social exchange within TSRI, and with PDSs from other academic institutions in the San Diego area.
- c) Network for Women in Science, <http://www.scripps.edu/services/nwis/pagesall/pageabout.html> meets monthly and provides support and guidance for female scientists.

UCSD Extension, <http://extension.ucsd.edu/> Course offerings include academic writing, project management, and English-language skills <http://extension.ucsd.edu/department/elp/programs/elp.html>.