

Mentoring

1 Orientation of Staff and Students

- The mentor is usually either the principal investigator or co-investigator of a research project or the designated adviser in a student's academic program.
- A mentor is responsible for introducing students, postdocs, and staff to what is in many cases their first research experience.
- A basic orientation is often needed in how to conduct and record experiments.
- Bibliographical and library practices are important components of the orientation, including development of habits of keeping up with the current literature, possibly through journal clubs.
- Graduate students, and sometimes postdocs, select their research problems, but the mentor can help in the selection process.
- The goals of the mentorship should be discussed prior to initiating the relationship or during the orientation.
- The traditions of the particular discipline, of the particular laboratory, and of the particular research project must be introduced, including the details of research protocols and research tools.
- Regular group or one-on-one mentor-trainee meetings can provide a setting for ongoing orientation.
- Safety and confidentiality issues specific to the research should be included in the ongoing training.
- Compliance issues related to governmental regulations and specific to the research area should be included in the training. (Compare, for example, modules on Human Subjects, Animal Care and Use, Conflict of Interest, Human Embryonic and Fetal Stem Cell Research and HIPAA Privacy Requirements.)

2 Oversight

- The student or postdoc should report progress regularly to the mentor.

- The mentor's oversight should not be restricted to research summaries but should cover primary data as well, at least on some random basis. The mentor cannot assume the integrity of the work he/she directs without thorough familiarization with the details.
- From time to time the mentor should directly, or through an experienced member of the research group, monitor experiments or observations of junior personnel or confirm results, particularly in the early stages of the trainee's work in the group, partly to strengthen the professional development of the trainee and partly to assure quality control.
- If the research is part of a group effort, frequent group meetings should be held at which results are presented to, and discussed by the group.
- Discussion of research ethics, including research misconduct and conflict of interest issues, should be part of the ongoing interaction between mentor and trainee.

3 Professional Development

- Keep in mind the goal of developing a student or postdoc into an independent creative researcher. You may have your own goals of advancing your particular research project, but you should not use the person you are mentoring merely as another pair of hands to help you satisfy your own agenda.
- A postdoc should be treated as a colleague and should be given leeway to develop an independent approach to a problem you suggest or even to embark on a new problem, consistent with the requirements of the funding source.
- A trainee should be encouraged by allocation of time and/or money to acquire skills or special techniques outside the mentor's own research group.
- The junior researcher should be encouraged to develop oral communicative skills by reporting research results or journal club assignments orally to a group.
- The mentor should encourage the development of skills in preparing funding proposals, perhaps through applications for traineeship, fellowship or travel awards or through submission of drafts for sections of the mentor's grant proposals.

- The mentor should encourage the student or postdoc to attend professional society meetings, both regional and national.
- The mentor should introduce trainees to colleagues from other institutions working in similar fields.
- When feasible, the mentor should encourage the student or postdoc to write abstracts and then make presentations at professional society meetings.
- The mentor should communicate deadlines for the trainee's completion of certain tasks such as preparing papers for publication.
- The mentor should review and critique promptly drafts of dissertations, or papers prepared in whole or part by students or postdocs.
- The mentor should give advice on the selection of a journal to which a paper should be submitted.

4 Respective Roles of Mentor and Trainee

- The mentor should be a role model for those being mentored, not only in matters of approaches to research but also in matters of professional ethics and responsibility.
- There should be early discussions about the criteria for naming authors or co-authors for publications that will emerge from the research. These discussions should include the order of listing of multiple authors. The mentor should not hesitate to grant authorship or co-authorship when it is deserved.
- There should be frank discussions about the assignment of royalty or licensing rights for any copyrights or patents that might be issued on the basis of the student's or postdoc's work.
- The mentor should be friendly and encourage the development of social graces by students and postdocs, but at some point it may be necessary to establish a professional objectivity or even distance.
- A mentor should have frank discussions with students or postdocs about their respective intentions with respect to following up on the research after the trainees leave the research group. A mutual understanding on who will continue each line of research can avoid bitterness in the future.

- A mentor should be frank about his or her expectations of including or not including a student or postdoc in a future research grant, especially if the trainee has been asked to write a portion of the funding proposal.
- The mentor must be careful that his or her behavior toward a trainee cannot be interpreted as sexual harassment.

For University policy on sexual harassment, see:
<http://www.pitt.edu/HOME/PP/policies/07/07-06-04.html>

- The mentor has an opportunity to benefit from experiences with the trainee, learning from what special skills and insights the latter brings to the shared enterprise and from what the trainee will accomplish after beginning to function more independently.

5 Career Guidance

- The mentor should initiate frank and helpful guidance about career options early in the relationship with students or postdocs. Realistic considerations should be given to the trainee's interests and abilities and to the state of the market.
- A mentor who does not think that a trainee's career choice is a good match with his or her abilities should offer constructive alternative choices. Also, a mentor who would not write a positive recommendation for a particular type of position should be frank with the trainee in this regard.
- The mentor should be helpful in guiding a student or postdoc to prospective employers and should make a personal contact if the prospective employer is a part of the mentor's professional network.
- A mentor should keep in touch with former students and postdocs and should try to be helpful in locating a "second" position if necessary, such as a more permanent position following a postdoctoral appointment.

6 Dangers of Exploitation

- A mentor should not let a student start on a dissertation project that has little probability of a successful outcome within a reasonable time, regardless of the contribution the work on that project may make to the mentor's larger research program.
- A mentor may feel very comfortable about having a student remain as part of an active research group and may, consciously or unconsciously, want to prolong the student's stay beyond what is needed for completion of a

dissertation. The mentor should realize, however, that the student's interest is usually to complete the degree as soon as possible and move on to a new position.

- A mentor may be very pleased with the work of a postdoc, not only in research but in overseeing the research of others. A postdoc who is kept on past several years should be considered for some additional recognition in terms of salary and/or rank, such as research associate or research assistant professor.
- The assignment to a student of a dissertation topic related to financial or outside management interests of the mentor is an invitation to trouble.

See Sections [4.3](#) and [4.9](#).

- The mentor should not expect that a student or postdoc will voluntarily perform personal services such as baby-sitting, gardening, or automobile repair, unrelated to the research.
- The mentor should be considerate of the needs of students and postdocs related to disabilities, family responsibilities or serious medical problems.
- A mentor who has taken on more students or postdocs than can be effectively managed is exploiting one or more of the trainees for whom the mentor is responsible.
- A mentor who leaves the campus on a sabbatical or other leave must allow for some suitable oversight of the students and postdocs.