

Important Information for APS Research Hosts

Research Hosts must be APS members in good standing

or have an active membership application under review at the time of application.

The teacher should work primarily under the supervision of an APS member and interact with the entire research group, including the experienced researcher heading the team.

The Research Host's application is critical to the review process. In previous years, the success of the application has often hinged on the host application, particularly the plans to continue contact with the teacher and his/her students. The research program that the APS member establishes for the teacher can be flexible. However, the program must include meaningful involvement in the ongoing research activities of the member's laboratory. See page 6 for models of summer research experiences.

We strongly recommend that you speak with and, if possible, meet with the teacher before submitting the application. This pre-meeting will contribute greatly to the teacher's meaningful involvement in your laboratory. In addition to discussing the ongoing research in your laboratory, you should frankly discuss the expectations each of you has regarding the summer experience. Strive to resolve the following questions prior to completing the application.

- **Work schedule** What hours/days do you expect the teacher to work? What weeks does s/he anticipate working? If an experiment is being done, when will the teacher be expected to be in the laboratory? (For example, if an experiment runs until 1:00 AM, is s/he expected to stay for the duration of the experiment? If so, is s/he expected to be back at work at 8:00 AM the same morning?)
- **Laboratory skills** What specific skills does the teacher have? Will you need to provide training for laboratory skills to ensure the teacher's hands-on involvement in your research? Is there a small set of papers that the teacher will need to read at the beginning of the research experience and, if so, can these be sent to the teacher ahead of time to facilitate his/her transition into the laboratory? Will s/he be working with animals or animal tissues? What procedures will s/he be performing on animals or tissues? The teacher should spend no more than 1-2 weeks doing background reading.

- **Mutual expectations** What do you expect/hope the teacher will be able to take back to his/her classroom at the end of the summer? Does this agree with the teacher's expectations? We find that when the teacher and the researcher come to an agreement about their expectations in advance, the summer experience provides greater benefits for both parties.
- **Building a long-term relationship** Are you willing to explore ways to continue contact with the teacher after the research experience is over? The program hopes to build long-term relationships between teachers and researchers on a local level.

The teacher should not be thought of as an additional technical assistant but as a partner in the research project. Applications can propose involvement in one or more research projects in one laboratory or a rotation through several laboratories in a member's department or institution (see page 6).

In addition to research, the teacher should be involved in other professional activities such as seminars, tours of laboratories and animal facilities, discussion sessions, journal clubs, and oral and written presentations of research results. Ideally, the APS member should act as a guide for the teacher during the *2009 Experimental Biology* meeting. APS will hold a luncheon honoring the Research Teachers and their Research Hosts.

The APS member's institution or research support is responsible for the cost of supplies and miscellaneous costs of the teacher's research work.

NEW! Cost sharing of at least \$1,000 toward the teacher's stipend and/or travel award is required. Through cost sharing, the APS is able to make more grant awards and involve more middle and high school teachers. Applications that include cost sharing generally receive higher ratings.

This Fellowship is competitive. Only 50–70% of the applications are funded each year. As this program is funded by grants, awards are contingent on the availability of funding.

Suggestions for a successful application and research experience

- At the time of application, teachers and researchers should discuss the planned research; agree on dates the teacher will work and the working hours and responsibilities.
- Teachers and researchers should jointly develop a plan for the summer research experience. The table below provides models for structuring the research experience. These models are not exclusive...others are possible.
- It is vital to frankly and openly discuss skills and experiences in research (teachers), in hosting a teacher (researchers) and expectations for the summer (both).
- Teachers should be involved in background "reading" for no more than 1-2 weeks of their summer research experience.
- Research Hosts should supervise the work of the summer research teacher. The most successful summer research experiences are those in which the teacher has consistent and frequent contact with the host researcher. The teacher may work with graduate or postdoctoral students but should not work for these students.
- Research Hosts who have never hosted an APS research teacher are encouraged to contact an APS member who has been a research host. See page 15 for research hosts who have volunteered to talk to prospective hosts.

Models for Summer Research Experiences

The following are models that teachers and researchers have used to structure the research experience. Please note that you are NOT REQUIRED to fit your research experience into one of these models.

1. Assign an investigative question and train the teacher in data collection techniques.

This model provides the teacher with an overview of the laboratory's research and assigns the teacher to an investigative question by mutual consent. The host researcher and laboratory personnel train the teacher in techniques for collecting data to support the investigation. The assignment must allow for the limited number of weeks that a teacher can commit. The scientist should ensure that the teacher gains insight into the research process and makes a significant contribution to the question under study.

2. Assign an investigative question and allow the teacher to determine the protocol.

The host scientist provides seed questions and general research guidance, but allows the teacher to determine the protocol, set up the experiments, collect and analyze the data, and report the results. Allowing the greatest degree of freedom for the teacher and researcher, the teacher needs a solid background in physiology and some recent research experience. Since few teachers in the program have the needed research experience, this model is used infrequently.

3. Focus on laboratory techniques.

This model provides training and exposure to numerous laboratory techniques and how the results contribute to the understanding of a research topic. The teacher may be expected to master a few of these techniques, but is generally interested in experiencing a variety of research procedures. This model requires an extensive time commitment of individuals in the laboratory. The teacher can gain a variety of useful skills that can be transferred to the classroom.

4. Focus on investigative processes.

This emphasizes analytical processes in research, rather than the technology of the laboratory. The teacher and mentor agree upon a broad research question, and then the teacher is shown how the question is broken into sub-questions for study. The host and laboratory personnel guide the teacher through laboratory discussions, data collection and analysis, and reporting. The teacher does not focus on one question but gains insight into the process. The summer is NOT spent in the library...the teacher should be involved in the hands-on research.

5. Examine different types of investigations in physiology research.

This model is similar to #4 except that teachers are exposed to research investigations and experiences across the campus. They visit several laboratories to learn of each laboratory's research, work with several host researchers, attend seminars, and are exposed to a variety of procedures and resources. This model requires structured time and directed purpose for visiting each laboratory.