



# Frontiers in Physiology

*Integrating Inquiry, Equity, and the Internet*

## **Local Outreach Teams**

### **Request for Proposals**

#### **To Form a New Team**

Please notify the APS Education Office of your intent to submit a proposal via email ([education@the-aps.org](mailto:education@the-aps.org)), fax (301-634-7098), or phone (301-634-7132).

Proposals may be submitted at any time.  
Allow 6-9 weeks for proposal review.

# General Program Information

**Frontiers in Physiology** is a program of the American Physiological Society (APS). The Local Outreach Team Program is sponsored by the APS and the National Center for Research Resources (NCRR) Science Education Partnership Awards (SEPA) (award # R25 RR15251) at the National Institutes of Health.

## What is *Frontiers in Physiology*?

**Frontiers in Physiology** is a teacher professional development program of the American Physiological Society, sponsored by the APS and the National Institutes of Health. *Frontiers* has four major goals:

- Develop, evaluate, refine, and disseminate a model and materials for integrating inquiry, equity, and technology into the middle/high school science classroom and into professional development programs;
- Build ongoing working relationships between research scientists and middle/high school teachers through research and in-service experiences and online communications;
- Promote the adoption of national standards for K-12 content and pedagogy -- especially inquiry, equity, and technology use -- by middle and high school science teachers through ongoing in-service activities developed collaboratively by teachers and researchers; and
- Increase teachers' skills in developing, assessing, and utilizing web-based curricular materials and resources, especially in integrating online resources into inquiry-based teaching.

## What is the purpose of Local Outreach Teams?

While *Frontiers* is a nationwide program, Local Outreach Teams (LOTs) are the functioning grassroots arm of the program. LOTs disseminate *Frontiers* materials and resources to middle and high school life science teachers via in-service workshops and build connections between physiology researchers and local teachers and schools.

## How is a LOT Team formed?

Each LOT team must have a team leader, who is an **APS member**. The team should include **physiologists** (and/or other biomedical researchers); **local middle/high school teachers**; and if possible, **representatives from the local school system** (e.g., the science supervisor or in-service coordinator) **and from any large federally-funded science education programs** (e.g., NSF State Systemic Initiatives or Urban Initiatives). To identify major programs in your area, refer to Annenberg site (<http://www.learner.org/>). A good target number would be 6-8 members; this allows the team leader to distribute the team's tasks among a number of persons.

## **What are the responsibilities of the LOT Team Leader?**

***The LOT leader must be a member in good standing of the APS. The LOT leader is responsible for:***

- Recruiting members for the LOT team.
- Assisting the APS Education Office in securing a local site suitable for the LOT Training Institute (see below)
- Ensuring that all activities of the LOT team, as listed below, are carried out.
- Ensuring that the APS receives all information and materials for evaluation or for financial reimbursement to the LOT by the specified deadlines – to include names and addresses of presenters and participants, as well as social security numbers for all participants receiving stipends. The APS will supply appropriate forms.

## **What are the responsibilities of a LOT Team?**

***LOT team members are responsible for:***

- Attending a Team Training Session to be held locally, and taught by LOT Team Trainers provided by the APS. This Training Session will provide training and information on how to field-test the new Workshop/Classroom materials including web-based segments and presentations on inquiry, equity and technology.
- Recruiting 25-30 middle or high school teachers to participate in a 1 or 1.5 day workshop using one or more of the two field-tested LOT Workshop/Classroom Units (see Titles and Descriptions in the table below) and other APS materials.
- Registration, including documentation of name, address, phone, fax, and email of participants.
- Review of workshop goals.
- Hands-on modeling of the LOT unit(s).
- Online Internet exploration, including interactive inquiry-based curricular materials (APS will provide materials and sites for this).
- Evaluation of the workshop by participants and workshop leaders.
- Conducting the 1 or 1.5 day workshop. Both researchers and teachers from the LOT should be involved in implementing the workshop.
- Hosting one follow-up "brainstorming" session with participating teachers. These sessions can focus on a variety of topics, including: how the workshop materials were used in the classroom; discussions of effective teaching strategies; demonstration of Internet resources for educators; presentations on careers in biomedical research; or opportunities for teachers at your institution.
- Participating in the evaluation component of the program by distributing and collecting completed participant surveys. The project's external evaluator will provide these.

- Taking 10 – 15 photographs of your workshop and follow-up sessions. These photographs will be used in future training of LOTs, on the APS website, and CD-ROM. A Photograph Authorization Form will be provided by APS for participant signature.
- Consider holding future workshops for teachers in your area. The workshops organized by previous LOTs have quickly become oversubscribed. Teachers are eager for the type of information and interaction that the Frontiers workshops can provide. LOTs may want to consider continuing to provide in-service programs for local teachers in future years. Some LOTs have received funding from local foundations and departmental budgets to do this.

## **What resources are available for each Local Outreach Team?**

- The APS has three field-tested, inquiry-based middle and high school level Learning Cycle Workshop/Classroom Units currently available for use by new LOTs:
  - Physiology of Fitness (High School)
  - Neural Networks (High School)
  - Physiology of Exercise (Middle School)
- Please note that five additional units are currently being field-tested by experienced LOTs and will be available to all LOTs in future years. However, new LOTs submitting a proposal in response to this RFP should plan to use the Physiology of Fitness, Neural Networks, and/or Physiology of Exercise.
- With input from members of previous LOTs, the APS Staff have developed a planning workbook to assist LOTs in recruiting participants, conducting workshops, and developing follow-up brainstorming sessions.
- Stipends for LOT team teachers. Each LOT team leader will have up to \$2,000 to provide stipends of up to \$100/day for teachers who work as members of the Local Outreach Team. Stipends can be provided for attending the Team Training Session; preparing for the workshop(s); and presenting the workshop.
- Funds to offset workshop materials costs: Each LOT team leader will have a \$2,500 fund to offset costs of workshop materials, breakfast or lunch (if provided), take-home materials, duplication, publicity, etc. These funds should be spent directly on benefits for participants and cannot be used for staff wages or consultants.
- APS education resources (brochures, neon rulers, CD-ROMs, etc.) for each participant, *as available*.
- APS shirts for each LOT member actively involved in the workshop presentation.
- Training and instruction on how to use the Workshop/Classroom materials provided by APS via local a Team Training Session taught by experienced APS LOT Trainers.

## What resources must the LOT contribute?

- Provide a site for the workshop. If the logistics make it feasible, we encourage you to

Unit Name	Grade Level	Summary of Learning Cycle Unit
<b>Physiology of Fitness</b>	<b>HS</b>	This unit covers aspects of cardiovascular and respiratory physiology that are important in exercise and fitness. It is designed to provide students with a scientific basis for understanding “fitness” – especially why it varies between individuals, and how one can improve their fitness. This unit can be used as an integrative review of these topics, or selected activities can be used to introduce some of the topics.
<b>Physiology of Exercise</b>	<b>MS</b>	This unit covers aspects of cardiovascular and respiratory physiology that are important in exercise and fitness. It includes a lifestyles inventory, exploration of biological variability and experimental variation using heart and respiratory rates, a demonstration of oxygen supply and demand during rest and exercise, and inquiry-based explorations of the baroreflex and responses to exercise.
<b>Neural Networks</b>	<b>MS</b>	This unit covers aspects of neurophysiology and neural responses that are important to the functioning of many body systems. It is designed to provide students with a scientific basis for understanding “reflexes,” especially why reflexes are special types of responses and how they can/cannot be modified. The modules are designed to teach students general physiological principles that are based on physical and biochemical principles. An important objective of the unit is that students should be able to relate what they learn about the nervous system to its many important interactions with other systems in the body.

invite teachers to the campus of your institution. If this is not possible, workshops can be held at schools, science museums, or community centers.

- Donate faculty time/support staff time for participation. The grants supporting these activities do not provide funds to offset staff support of faculty time at the dissemination sites. These costs will not be reimbursed.
- Identify local school contacts and recruit participants. The APS staff can provide some assistance in identifying appropriate school officials and directors of major education programs but, in general, this responsibility resides with the LOT.
- Consider providing stipends for participants. The LOT should consider whether it is typical for workshops in your area to provide a stipend for participating teachers (typically up to \$30 per day). Check with local teachers.

## How many LOT proposals will be funded?

Funding is available for 2-4 LOT applications, depending upon the amount of cost sharing proposed by the individual LOTs in their proposals.

# Application Guidelines

## How can you apply for funding for your Local Outreach Team?

- 1. The LOT team leader must be a member of the American Physiological Society.** Because the activities of a LOT require the commitment of time and resources of your department/division, if the LOT team leader is NOT the chair/head of a department, **the leader should provide evidence that the department chair/head is supportive of this effort.**
- 2. Identify at least one teacher or school system representative with whom you will work.** If possible, provide a letter of support from the person(s). If you are a current/former Summer Research Teacher Host, this may be the teacher who worked in your laboratory.
- 3. Identify at least two faculty members/researchers who are interested in working on this effort.** These faculty are not required to be APS members.
- 4. Contact the APS Education Office to indicate your intention to apply (optional, but strongly encouraged).** Please contact Marsha Matyas, the Education Officer, to indicate your plan to submit a proposal. This is optional but will assist us in the proposal review process and will allow us to send you additional information on the program. Call (301-634-7132), fax (301-634-7098), write, or email (education@the-aps.org).
- 5. Complete the Proposal Cover Sheet (see page 8).**
- 6. Attach responses to the proposal questions (see page 9).**
- 7. Attach a budget, using the enclosed form (see page 10).**
- 8. Attach any letters of support and/or supplementary materials.**
- 9. Return all materials to:**
  - LOT Program – New LOT
  - APS Education Office
  - The American Physiological Society
  - 9650 Rockville Pike
  - Bethesda, MD 20814-3991

Phone: 301-634-7132  
Fax: 301-634-7098

**Please allow 6-9 weeks for proposal review.**

## **What are the selection criteria for proposals?**

Proposals will be read and rated by the APS staff and members of the Frontiers National Advisory Board and/or Local Outreach Teams. In the past, most LOT proposals have been funded. Proposals will be rated on the basis of the following criteria:

- **Departmental support:** Does the proposal have the strong support of the department chair/head? Does the department plan to invest time and resources in the program?
- **Potential impact on local teachers:** Some institutions already have established outreach programs for teachers. Other institutions have not yet developed an outreach program. The Frontiers in Physiology program encourages submission of proposals from both types of institutions for participation as LOTs. Proposals that plan to develop new relationships between physiologists and teachers/schools, and those that support and expand established relationships, will be considered. Evidence of some established contact with teachers or school personnel should be provided for all proposals. Where possible, proposed actions should build connections to large-scale science education efforts in the geographic area (e.g., State Systemic Initiatives, Urban Systemic Initiatives, other teacher enhancement programs). Also, proposals that have a long-range plan for continuing connections between teachers and researchers will be considered positively.
- **Geographic placement:** Because Frontiers is a nationwide program, Local Outreach Teams will be selected from diverse geographic areas.
- **Impact on minority students:** Where possible, LOTs should make efforts to include teachers from schools that serve primarily minority populations. Due to the under-representation of minority students in science majors, the APS makes every effort to extend its outreach programs to diverse student populations.
- **In-kind support:** Each year, cost-sharing by LOTs has allowed the funding of additional LOTs. Cost-sharing is encouraged but not required.

## ***For more information, contact...***

Education Office, The American Physiological Society

9650 Rockville Pike, Bethesda, MD 20814-3991

Phone: (301) 634-7132 Fax: (301) 634-7098

Email: [education@the-aps.org](mailto:education@the-aps.org)

<http://www.the-aps.org/education/lot/index.htm>

**About the APS...The American Physiological Society (APS) is devoted to fostering scientific research, education, and the dissemination of scientific information. By providing a spectrum of physiological information, the APS strives to play an important role in the progress of science and the advancement of knowledge. Providing current, usable information to the scientific community is the Society's primary focus.**

# Proposal Cover Sheet

## Frontiers in Physiology Local Outreach Teams

(This form can be replicated on your word processing program.)

<b>I. Team Leader Information (must be APS member)</b>	
<b>Name</b>	
<b>Position</b>	
<b>Institution</b>	
<b>Mailing Address</b>	
<b>Email</b>	
<b>Phone</b>	
<b>Fax</b>	
<b>Are you an APS Member in good standing?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Sure

<b>II. Department /Department Chair Information</b>	
<b>Name of Department</b>	
<b>Department Chair</b>	
<b>Email</b>	
<b>Phone</b>	
<b>Fax</b>	

<b>III. Proposed LOT Team Members</b>	
<b>Name (Can be "to be named")</b>	<b>Position (e.g., faculty member, teacher, principal, science supervisor, etc.)</b>

**(Continue on attached sheet, if necessary)**

**PLEASE ANSWER THE QUESTIONS IN THE FOLLOWING THREE AREAS ON AN ATTACHED SHEET(S)** - These questions should be numbered, but not in a table. Please be brief, no more than three pages total. If desired, you may append **brief** materials describing existing K-12 outreach efforts in operation in your department/division.

#### **IV. Departmental outreach goals**

- What goals/plans does your department have for outreach to K-12 teachers and schools?
- What existing contacts or programs do you/your department have with local schools?
- How will you utilize these in conducting a Frontiers workshop?
- What is the level of faculty interest in outreach programs?

#### **V. Workshop Resources**

- Describe where you might conduct the workshop (e.g., the workshop site).
- Who will handle the logistical details for the project (publicity, registration, nametags, catering, etc.)?
- What other resources would the department bring to this project?
- What Learning Cycle Workshop/Classroom Units might you present in the workshop? (See page 4 for Unit titles.)
- What ideas do you have for your follow-up brainstorming meeting with teachers?

#### **VI. Building Relationships**

- What future or long-term relationships do you hope to build out of participating in this program?
- Would you consider holding workshops for teachers in the future?
- **Do the schools which you are considering working have significant populations of minority students? Please describe.**

<b>VII. Budget Request</b>
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<b>Total Funding</b>	<b>In-kind support from your institution or other local sources</b>	<b>Request from APS</b>
LOT teacher stipends: \$2,000 maximum	\$	\$
Participant teacher stipends: <i>(Varies by site)</i>	\$	
Workshop materials costs: \$2,500 maximum	\$	\$
Team Training Session costs for LOT team members	N/A	LOT Team Travel covered by APS
Other Costs Note: Stipends for faculty, support staff, and consultants are not allowable costs for submission to the APS. (attach separate sheet)	\$	
<b>TOTAL</b>	\$	\$