Career Opportunities in Physiology Committee

Careers Symposium

This annual EB Careers session is intended to address the specific objective in the 2000 APS Strategic Plan, “to promote interest in and understanding of careers in the physiological sciences” and the related action item, “to provide information on career options and training in professional skills for both research and teaching via meetings and electronic communications. In recent years, the Careers session focused on the diversity of career opportunities in physiology, particularly those in non-traditional areas. For the 2004 session, the Committee chose to compliment the international focus of the IUPS meeting by focusing the Careers Symposium on “International Collaboration: Science Knows No Boundaries.” The symposium highlighted how to have a successful research experience overseas and in the US, how to do both teaching and research overseas and in the US, international research cooperation, and international opportunities in biomedical research training. The workshop focus and information highlighted the skills development endorsed by the APS and ACDP in the List of Professional Skills for Physiologists and Trainees.

Over a number of years, the Committee has established 1) strong session attendance by students at the undergraduate, graduate, and postdoctoral levels; and 2) positive feedback from attendees as appropriate indicators of success for this activity. The 2005 session was not as well attended this year as in past years. Participation in the symposium was primarily by graduate students, but also significant numbers of postdoctoral fellows and undergraduate students. Participant feedback indicates that the sessions have been generally well received. The 2005 program received an overall rating of 4.7 on a 5-point scale (5 = “Very Useful” and 1 = “Not Useful”), and the individual speakers received ratings between 4.2 and 4.6 on the same 5-point scale.

The plan for the 2006 session is currently being developed. The Committee decided to complement the theme selected by the Trainee Advisory Committee (TAC) for its first symposium, “Transitioning from Post Doc to Career.” A topic will be developed in conjunction with the representatives from the TAC.

APS Summer Undergraduate Research Fellowship Program

This program was designed to help achieve one element of the 2000 APS Strategic Plan Awards and Grants Plan – viz., “to attract the next generation of physiologists and foster their early career development.” This program continues to be very successful. For the sixth year of funding, 42 applications were received, an increase of 150% from last year. The Committee saw this as a direct response to the increase in stipend level the Council approved last year. Although the quality of most of the applications was sufficient to merit funding, the Committee chose the twelve “best” for awards. Thus, 29% of the applications were funded, which did allow for high selectivity on our part. Over the six-year history of the program, we have received 263 applications for the 72 awards granted, yielding an overall “selectivity” ratio of about 1:4.
We will follow the same process and use essentially the same criteria for next year, except for some minor technical adjustments. The Committee members ranked the applications as well as scored them for the first time this year, and that worked very well, allowing us to reach our decision on the 12 awardees much faster during the conference call.

**Short term impacts:** Evidence suggests that the program is meeting the “short-term” goals of the program. This year, all 11 fellows (one fellow dropped out of the program during the summer) attended the IUPS/EB 2005 meeting, bringing the five-year total to 57 of 59 total awardees (97%) who attended EB, an APS national conference, or a comparable national meeting. At IUPS/EB 2005, nine of the fellows presented abstracts; in addition, four of the fellows had two posters each and a fifth fellow had both a poster and an oral presentation. The initial 59 awards (first 5 years) have fostered research experiences sufficiently successful to produce 55 abstracts at national meetings.

**Long-term impacts:** We have finished an online follow-up survey of the first three “classes” of UGSRF fellows now to ascertain what impact the UGSRF experience had on their career choice to-date. The large majority of fellows (88%) continued working in research as undergraduates, either in their fellowship research mentor’s lab (53%) or another lab (34%). Of those who continued research work, 75% received a stipend or pay for their work. Nearly 33% of the students responding had published a paper or report on their APS-funded research.

A vast majority (82%) of the responding students had graduated from their undergraduate institutions. Of these, 52% had applied to graduate school (PhD or Master’s programs) and 46% had been accepted. A total of 59% had applied to a science-related professional school (e.g., MD, DVM, DDS) and of those 46% were accepted into a program. In total, 96% of those participating in our program who had already graduated from college have been accepted to graduate or professional school. At the time of the survey, most of the graduates (81%) were already enrolled in a graduate or professional degree program. Nearly one-third were enrolled in graduate programs leading to the doctoral or Masters degrees and an additional quarter were in dual-degree programs. The large majority of students in graduate school or in dual-degree programs were studying in physiology (50%) or neuroscience (38%).

**Careers Poster**

A new careers poster was designed in 2002 for annual distribution to all U.S. and Canadian undergraduate colleges and life sciences departments. The poster prominently displays the URL for the APS Web site, which is how most undergraduates seek information. Posters must be re-distributed every year, because their undergraduate departments clean off their bulletin boards each autumn. As a cost-saving measure, posters were printed in numbers sufficient to mail for two consecutive years (2003-2004).

**Outcome Measures:** While our overall goal in the annual distribution of the career poster is to attract more students to physiology careers, it would be difficult to measure its direct impact on that outcome. An interim objective is to use the poster to get students to come to the new APS Careers Web to explore physiology career options further. Therefore, the Careers Committee is monitoring the web usage statistics for the Careers Web to determine increased usage, especially following the posting of the careers posters at undergraduate life sciences departments in the fall.
Outreach Power Point Presentation Package
This program was designed to help achieve four objectives in the 2000 APS Strategic Plan. First, in the Awards and Grants Plan section, the objective is “to attract the next generation of physiologists and foster their early career development.” In the Education section, the objective is “to promote interest in and understanding of careers in the physiological sciences.” Finally, in the Advocacy and Public Affairs, the Plan includes objectives “to educate the public about the central role of physiology in health and disease” and “to increased opportunities for participation by APS members in public education, in advocacy for research funding, and in support of animal research.

The Committee made significant progress this year on its plan to provide downloadable PowerPoint slides for outreach presentations to middle school, high school, and undergraduate students. The current concept is to assemble a wide variety of graphic, pictorial and word slides that illustrate the nature of physiology and the diversity of career opportunities in physiology. The individual “slides” will be appropriate for different age groups, so that APS members could pick and choose a selection of slides appropriate for their individual use. The package will include two major sections—a section on career opportunities in physiology, and a section on “physiology in action.” The latter section will consist of modules organized around a physiological topic or disease. Each section will include some slides on background material for the topic and additional slides showing how a physiological study has contributed to our understanding on some specific issue related to that topic.

Five different versions of the PowerPoints are in preparation for use with (a) elementary school, (b) middle, (c) high school, (d) lower undergraduate; and (e) upper undergraduate students. These will be uploaded for use by the APS membership on the web site. Draft versions of the remaining three presentations are currently being reviewed for appropriateness of content and language for each age group by Committee members. In addition, teachers who have participated in the APS-Baylor College of Medicine My Health, My World elementary science program will review materials for elementary students while former APS Summer Research Teachers (Frontiers in Physiology program) will review materials for middle and high school students. The Committee plans to have those final versions ready for Council approval this fall.

APS Careers Web Site
As noted earlier, the 2000 APS Strategic Plan includes an Education Objective “to promote interest in and understanding of careers in the physiological sciences” and an Awards and Grants Objective “to attract the next generation of physiologists and foster their early career development.” The action item associated with the Education objective was to “provide information on career options and training in professional skills for both research and teaching via meetings and electronic communications.”

Toward that goal, the Careers Committee developed a new APS Careers Web site in 2002. This website provides extensive resources for two major purposes: 1) To assist students and new and experienced physiologists in the development of their careers; and 2) To help the general public gain a better understanding of the work that physiologists do. The site includes separate sections and resources for elementary, middle/high school, undergraduate, graduate/professional, postdoctoral, new investigators, established investigators, and the general public. Within each section, the user finds resource categories customized to their needs and the specific resources (such
as biographies, hands-on experiments, career resources, etc.) are written at the appropriate educational level.

In the past year, over 50 new resources (or links to new resources) have been added to the Careers web site. These include new information at all the levels, but primarily undergraduate, graduate/professional, postdoctoral, and new investigator levels.

**Outcome Measures:** The website launched in March 2003. While it was expected that use would have increase significantly this past fall when the new physiology careers posters are displayed at colleges and universities around the nation, this increase was not evident. New efforts at advertising are being planned to promote the web site to students and physiologists at all levels. This fall, ads for the Careers web site were included among the APS Positions Available ads. This did lead to a substantial increase in the number of hits to the site. The ads will be changed every 6-8 weeks to maintain interest.

**Figure 1: 2003-2004 Career Web Site Statistics**

![Graph showing Career Web Site Statistics]

**Fall Committee Meeting**

Prior to 2001, the Career Opportunities in Physiology Committee held a single 1- to 2-hour meeting annually during EB. At that time, the committee’s major activities consisted of: 1) Organizing an annual Careers Symposium at EB; and 2) Developing and distributing a career poster to undergraduate biology departments.

In 2001, the Committee, with support from Council, launched the new Undergraduate Summer Research Fellowship (UGSRF) program and held the first of three 2-day fall meetings (2001-2003). As a result of those meetings, the Committee has in four years, completed the following projects:

- Continued organizing the annual Careers Symposium at EB and began coordinating the Careers Symposium with both the Women in Physiology Committee Mentoring workshop (2004) and the Trainee Advisory Committee workshop (2005) and focusing the Careers Symposium on skills listed in the APS-ACDP Listing of Professional Skills;
- Developed and distributed a new career poster for undergraduate biology departments, highlighting the new APS Career Web;
• Developed a Career Web that includes more than 700 web pages and nearly 5,000 links to external web resources for physiology and scientific career development.
• Developed and disseminated more than 15,000 copies of a new career brochure designed to stimulate pre-college students’ understanding of and interest in physiology careers. This brochure replaced the previous version, an expensive and outdated brochure developed more than 10 years ago that was distributed in only limited quantities due to cost. The new brochure costs less than a sixth of the cost of the old brochure and directs students to the new APS Career Web for more information.
• Launched and expanded the new UGSRF program, including conducting both formative and summative evaluations of impacts in the first three years of the program;
• Developed PowerPoint presentations on careers in physiology and physiology research topics for talks to K-12 and undergraduate students; and
• Participated in the development of the APS/ACDP Listing of Professional Skills.

At a time when careers in science are becoming more diverse and when career issues are critical not only for the newly minted scientist but for mid- and late- career scientists as well, it is important for the APS to have a Committee proactively working to support the career development of the physiology community. The fall committee meeting has allowed this Committee to complete important tasks—such as the Career Web development—quickly and effectively. In the coming years, the Committee anticipates:
• Planning an international symposium for EB 2006;
• Completing and disseminating the PowerPoint presentations on careers in physiology and physiology research topics for talks to K-12 and undergraduate students;
• Developing a new career poster for distribution to undergraduate departments;
• Overseeing the annual survey of doctoral recipients in physiology, conducted by the Education Office, including preparation of a five-year report on the survey results; and
• Continuing to improve and evaluate the Undergraduate Summer Research Fellowships program.

APS Staff
Over the past several years, the Career Committee's activities have been expanded, with the various projects going well beyond just putting together a session for the EB meeting. The Committee would like to acknowledge the continued support and assistance that has been required and received during the past year from Marsha Matyas (APS Director of Education Programs), Melinda Lowy (Higher Education Projects Coordinator), and other Education Office staff, as well as Martin Frank (Executive Director).