



## Teaching of Physiology Section

### Newsletter, Fall 2007.

Editor: Jonathan Kibble.

#### 1. Message from the Chair, Frank Belloni



As you can tell from this newsletter, the arrival of the new academic year is accompanied by a bevy of activity within the Teaching Section. For starters, we have two new members of our Steering Committee. Mary Anne Rokitka (SUNY at Buffalo) has been elected the Teaching Section's liaison to the APS Education Committee and Bill Galey (HHMI) has been elected the Section's new chair. Both Mary Anne and Bill will take office at next Spring's EB meeting, replacing Mike Levitsky and yours truly.

Speaking of next year's EB meeting (April 5-9, 2008 in San Diego), it promises to be another very interesting one. The Teaching Section has three program slots. Jon Kibble and Penny Hansen are developing a symposium entitled "**Is formative assessment an effective way to improve learning?**" Mary Pat Wenderoth is organizing a featured topic on students' retention of learning – a topic of considerable interest (and frustration) to all of us. The session is entitled "**Encouraging Unforgettable Learning**" and will feature **Robert Bjork** from UCLA, followed by abstract presentations. We are also working on an exciting and novel Bernard Lecture, but we don't yet have a final commitment from the speaker as this newsletter goes to press. Look for the announcement in the Section Listserv. The teaching program will begin on Sunday April 6 at 8am with the Symposium, followed by the Claude Bernard lecture. The Featured Topic is on Monday 10:30am-12:30pm

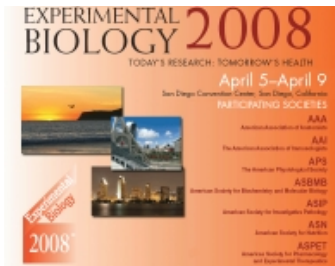
In addition to our "oral" sessions, there will be poster sessions on topics related to the teaching of physiology. Speakers in the featured topic session (see above) will include individuals chosen based on their submitted abstracts. The EB abstract submission deadline is November 7, so be sure to get your abstract in on time!

Don't forget our Section's three awards – the *Arthur C. Guyton Educator of the Year* award, the New Investigator Award, and the Research Recognition Award. Although only the Research Recognition Award is based on submitted abstracts, the deadline for applications for all three awards is November 7. We would like to increase the number of applicants for these awards, so be sure to submit your application, or your student's application. Details on what and how to apply can be found below.

Finally, I would like to encourage all of you to participate in the Teaching Section's activities by presenting your teaching research or teaching experiences at EB, by suggesting ideas for programming or helping to organize our program sessions, and by encouraging your students and colleagues to join us as well. You, and your doctoral students and fellows, can be members of multiple APS sections, including your research specialty section *and* the Teaching Section.

I look forward to seeing you all in San Diego in April!  
Best regards, Frank. September 2007

## 2. Deadlines!



### Experimental Biology 2008. April 5-9, San Diego ([www.eb2008.org](http://www.eb2008.org))

- November 7, 2007: abstract submission
- February 6, 2008: early registration
- March 3, 2008: hotel reservations

### Apply for Teaching Section awards!

**November 9, 2007: The Arthur C. Guyton Educator of the Year Award sponsored by the W. B. Saunders Company [Elsevier]** (\$1,000, plaque and up to \$750 in travel reimbursement to the Experimental Biology meeting) recognizes a full-time faculty member of an accredited college or university and member of the APS who has independent evidence of: (1) excellence in classroom teaching over a number of years at the undergraduate, graduate, or professional levels; (2) commitment to the improvement of physiology teaching within the candidate's own institution; and (3) contributions to physiology education at the local community, national or international levels. A member of APS must nominate a candidate for this award. The nominator is responsible for completing the online application materials ([www.the-aps.org/awardapps](http://www.the-aps.org/awardapps)). All application materials must be submitted online by November 9, 2007. The award winner is announced at the APS Business Meeting during Experimental Biology. The awardee is requested to write an essay on his/her philosophy of education for publication in *The Physiologist*. Questions should be directed to, Roy D. Russ, Chair of the Guyton Award Selection Committee, Associate Professor, Division of Basic Medical Sciences, Mercer University School of Medicine. Email: [russ\\_rd@mercer.edu](mailto:russ_rd@mercer.edu); Phone: (478) 301-2390; FAX: (478) 301-5489

**November 7, 2007 The Teaching of Physiology Section New Investigator Award** (\$1,000 and reimbursement of the annual meeting advance registration fee) recognizes an outstanding investigator in the early stages of his/her career. Candidates should be investigators who have made meritorious contributions to the scientific areas represented by the APS Teaching of Physiology Section. They should not be above the rank of Assistant Professor or a comparable position in a research track at an academic institution or in industry (e.g. Scientist, Sr. Scientist, Research Investigator, etc.). They should receive nominations from at least two regular members of the APS. Candidates will be judged on their publications, how the publications relate to the Teaching of Physiology Section and evidence for independence and promise (e.g., grant funding, peer review activities, etc.). Although this is not an abstract-based award, awardees are expected to attend EB and make an oral or poster presentation. The candidate must be an APS member in good standing. Candidates must provide a curriculum vitae, 2 nomination letters from APS members, and 3 reprints. All application materials must be submitted online ([www.the-aps.org/awardapps](http://www.the-aps.org/awardapps)) by November 7, 2007. Questions should be directed to Jonathan Kibble at: [jonathan.kibble@med.mun.ca](mailto:jonathan.kibble@med.mun.ca)

The **Teaching of Physiology Section Research Recognition Awards** (\$500 and reimbursement of the annual meeting advance registration fee) will provide two travel awards for outstanding posters presented in the Teaching Poster Sessions at Experimental Biology. To qualify for this award, the applicant must be first author on the poster, age 40 or under, or within 10 years of receiving the Ph.D. or M.D. Applicants must also be APS regular, affiliate, or student members. Abstracts will be

reviewed and rated by the Teaching Section Steering Committee. All poster abstracts must be formally submitted to EB by the abstract deadline. Applicants must provide a copy of the abstract submission. Awardees are recognized at the Teaching of Physiology Section Business Meeting at the EB meeting. All application materials must be submitted online ([www.the-aps.org/awardapps](http://www.the-aps.org/awardapps)) by November 7, 2007. Questions should be directed to Jonathan Kibble at: [jonathan.kibble@med.mun.ca](mailto:jonathan.kibble@med.mun.ca)

### 3. Special thanks to Dee Silverthorn, Departing Editor-in-Chief of *Advances in Physiology Education* (and Welcome Rob Carroll!)



#### A job well done

As most of you know, Dee Silverthorn is completing her 6 year term as Editor of the journal *Advances in Physiology Education*. She has guided the journal through a number of highly significant changes, not the least of which was the move to an on-line submission and review process.



Under her leadership, the journal has continued to grow in size and prestige, and now is published quarterly and ranks 4<sup>th</sup> among journals related to Medical Education. The journal fills a unique niche among APS publications, and although the citation index factor trails other APS journals, *Advances* ranks second (behind *Physiological Reviews*) in the number of web accesses and downloads.

As incoming editor, I plan to continue the development of the journal as the primary tool for the professional development of physiology educators. This can be as simple as providing a resource of ideas and approaches for those whose professional career emphasizes teaching. The scope of the journal should also provide opportunities to develop and refine educational skills both by providing materials and by alerting readers to meetings and conferences. Finally, the journal should provide a peer reviewed venue for individuals pursuing educational scholarship, and who are advancing their career based on achievements in the educational setting.

It is always rough to take the stage following a successful act. And I am sure you share my appreciation and join me in thanking Dee for the wonderful job she has done for the journal and the section during the past 6 years.

Rob Carroll

## 4. Community News and Events

Thanks to Nancy Pelaez for the inaugural article in this new general information section of the Newsletter.



### NSF funding of innovative physiology education: “Where Discovery Begins”

The National Science Foundation (NSF) funds science, technology, engineering, and mathematics (STEM) research and education with the goal of accelerating discovery. Having just completed a year as a Program Director in the NSF Division of Undergraduate Education (DUE), I find myself with information that the physiology education community can use to collectively advance the quality of education and consequently the potential for future discovery in our field.

NSF programs from the Division of Undergraduate Education support educational innovations to improve the quality of STEM research and education. NSF does not support projects that focus primarily on students who will become health, veterinary, or medical professionals, because advances in biomedical and behavioral science are supported by NIH. NSF runs a variety of programs that fund curricular innovation, faculty development, research on educational issues, and recruitment, support, and retention of students (see footnote).

The broadest and most flexible program in DUE, open to all types of undergraduate institutions and students, is the Course, Curriculum, and Laboratory Improvement (CCLI) program (NSF 07-543). Successful CCLI proposals increase the effectiveness of undergraduate education through improved quality, content, and conduct of STEM courses, curricula, and laboratories by creating new learning materials and teaching strategies, developing faculty expertise, implementing educational innovations, assessing learning and evaluating innovations, or conducting research on STEM teaching and learning. The program serves as an important test bed for introducing and disseminating new ideas in teaching, new technologies, emerging sciences, and new players in undergraduate education. The programs' three tiered structure, ranging from support of small starter projects of about \$150,000 for testing of new ideas to large projects of up to \$2,000,000 to disseminate proven models, is meant to seed and support projects that work to continually improve the quality and content of undergraduate STEM education.

Awards made during fiscal year 2007 which ended at NSF on September 30, 2007 included only 27 CCLI projects funded in biological sciences. Of these, 7 were phase 2 (expansion) projects. Of the 95 phase 1 (exploration) proposals received, 20 phase 1 projects were funded. It is hoped that many of these will yield results that will justify larger phase 2 projects that extend beyond the original campus. Although funding rates were better for proposals in the biological sciences (including physiology) than for other disciplines, the small number of funded proposals reflects a lack of proposals from our discipline. As comparison, note that for Engineering, 75 phase 1 projects were funded out of 248 phase 1 proposals received. Starting last year, 27 phase 2 and 6 phase 3 projects began new support for collaboration and dissemination among the engineering education community. For Computer Science, in fiscal year 2007, 28 phase 1 projects were funded from the 141 phase 1 proposals submitted. Notice that funding levels reflect proposal pressure. As a community, we can promote funding of educational innovation in our field by helping each other come up with new ideas that have a clear and compelling rationale. More proposals will lead to a larger portion of the

funding being dedicated to educational innovation in our discipline. More biology proposals will produce innovation for biology education. More physiology education proposals will encourage NSF Program Directors to increase the number of proposal review panelists who are physiologists. Having an expert physiology educator reviewing our proposals will increase the likelihood that high quality physiology education innovations will be funded.

The historic numbers of biology education proposals displayed in the table below suggests a trend that is headed in the wrong direction if our intent is to improve and up-date undergraduate biology instruction.

	Biology faculty development or lab improvement proposals in 1994	CCLI biology proposals in 2004	CCLI biology proposals in 2007
# submitted	355	263	95
# funded	126	34	27
funding rate	35%	13%	28%

The perception that funding rates have declined is accurate. It is therefore important to submit a high quality proposal because reviewers will not “read between the lines” to find quality as they may have done 15 years ago. In response to the decline in funding, NSF has become more explicit about the distinguishing characteristics of a high quality proposal with both intellectual merit and broad impact:

#### Intellectual Merit

- Does the project have potential for improving student learning in undergraduate science, technology, or engineering education programs?
- Are the goals, objectives, and outcomes and the plans and procedures for achieving them, worthwhile, well-developed, and realistic?
- Is the evaluation plan clearly tied to the project outcomes? Is the evaluation likely to provide useful information to the project and others?
- Is the rationale for selecting particular activities or components for development or adaptation clearly articulated and informed by and built on the research literature and the work of others, including those doing similar work overseas? The Principle Investigator of a proposal must be at an institution in the United States, but collaborations with investigators overseas are encouraged and can be funded with subcontract awards.
- Is the evidence of institutional support clear and compelling, and have plans for long term institutionalization been addressed?

#### Broader Impacts

- Will the project evaluation inform others through the communication of results?
- Are the results and products of the project likely to be useful at other institutions?
- Are other educational institutions involved in project activities?
- Will the project's results be widely disseminated and will its products be distributed effectively and commercialized when appropriate?
- Does the project promote diversity in STEM?

#### Footnotes:

Examples of NIH programs that support undergraduate education include the Bridges to the Future Program and several NIGMS' programs such as the Division of Minority Opportunities in Research (MORE) program aimed at increasing the number of minority biomedical and behavioral scientists,

the NIH Research Initiative for Scientific Enhancement (RISE), and Initiative for Maximizing Student Diversity (IMSD) programs.

NSF programs to support undergraduate education are listed below. To find information on a specific program, go to the <http://www.nsf.gov> website and then select Education and then the Division and Program of interest.

***PROGRAM & CURRICULUM DEVELOPMENT***

Course, Curriculum & Laboratory Improvement (**CCLI**)  
Advanced Technological Education (**ATE**)  
STEM Talent Expansion Program (**STEP**)

***DIRECT STUDENT SUPPORT***

NSF Scholarships in Science, Technology, Engineering or Mathematics (**S-STEM**)  
Research Experiences for Undergraduates (**REU**)  
Undergraduate Research and Mentoring in the Biological Sciences (**URM, BIO**)  
Cross-disciplinary Research at Undergraduate Institutions (**C-RUI**)

***RESEARCH ON STEM EDUCATIONAL ISSUES***

Research on Gender in Science and Engineering (**GSE, HRD**)  
Historically Black Colleges and Universities Undergraduate Program (**HBCU-UP, HRD**)  
Tribal Colleges and Universities Program (**TCUP, HRD**)  
Course, Curriculum & Laboratory Improvement (**CCLI**)  
STEM Talent Expansion Program (**STEP**)

***RECRUITMENT AND RETENTION OF STUDENTS***

STEM Talent Expansion Program (**STEP**)  
Undergraduate Research and Mentoring in the Biological Sciences (**URM, BIO**)  
NSF Scholarships in Science, Technology, Engineering or Mathematics (**S-STEM**)

***If you would like to contribute an article, or have other comments or suggestions for the Newsletter please send to:  
[jonathan.kibble@med.mun.ca](mailto:jonathan.kibble@med.mun.ca)***