Message from the Chair

In reflecting on the close of another year, it is hard to ignore the impact of a stagnant national economy on the health of physics departments at primarily undergraduate institutions. Perhaps two of the more newsworthy items are the proposed closure of approximately 60% of the physics programs in the Texas state university system and, in Washington D.C, the prolonged budget debate that threatened severe cutbacks in FY 2012 funding to NSF, NASA, and NIST.

What can be done? The physics and astronomy communities responded when prompted by CUR, AIP, APS, and AAS to contact their representatives and speak out about proposed budget cuts. Congress restored FY 2012 funding in November.

On a more local level, former CUR councilors Beth Cunningham and Ted Hodapp are working to provide resources and support for smaller physics departments facing increased budget scrutiny. Cunningham, now AAPT Executive Director, is organizing a SPIN-UP Regional Workshop for Texas state institutions of higher education with small physics departments. Workshops are based on the National Task Force on Undergraduate Physics report on project SPIN-UP (Strategic Programs for Innovations in Undergraduate Physics; details at: aapt.org/Programs/projects/ntfup/index.cfm)

The goal of SPIN-UP Regional Workshops is to enable physics departments in a wide variety of institutions to build the departmental infrastructure that will produce long-term improvements in undergraduate physics programs and to enhance the number of students studying physics and the quality of student learning. Hodapp, now Director of Education and Diversity for the American Physical Society, has written a powerful article entitled "The Economics of Education: Closing Undergraduate Physics Programs" in the December Physics News (www.aps.org/publications/apsnews/201112/backpage.cfm). The article provides resources for faculty in promoting the value of smaller physics programs and offers advice in taking a proactive approach in times of tight budgets.

It appears that one answer to “what can be done?” is to continue to write, phone, and email your representatives in Washington, DC. It makes a difference and will be even more important as the budget debate intensifies. Likewise, educate your colleagues and administrators about the work of CUR, AAPT, APS, and AAS and take advantage of the resources offered by these organizations. Finally, tell us approaches you have taken to strengthen your physics and astronomy programs. We encourage you to contribute to this critically important dialogue by submitting your thoughts and comments to Nadine Barlow, editor of the CUR Physics and Astronomy newsletter at Nadine.Barlow@nau.edu.

Dave McGee
The College of New Jersey
mcgeed@tcnj.edu

CURPA 2011 Year-End Report

The Physics and Astronomy division continued to leverage the undergraduate research statement developed previously and now accepted by most major physics and astronomy societies. The division likewise
had extended discussions about the state of funding for researchers at primarily undergraduate institutions. One immediate action taken by the division was the submission of an NSF Research Experiences for Undergraduates (NSF-REU) proposal. If funded, the CUR P&A NSF-REU would provide research experiences for visiting students at the councilor’s home institutions. This “distributed” REU would enable students with traditionally limited access to research programs to experience it at any one of eight institutions, including those of councilors Crogman, Jackson, Mateja, McGee, Oswalt, and Sudhakaran. The division thanks all of the councilors for working on this proposal, with special thanks to Mike Jackson and John Mateja for writing the proposal and submitting to NSF.

(Editor’s update: Unfortunately the distributed REU proposal was not funded this year, but CURPA plans to resubmit.)

The COEUR Document: Getting to the Heart of the Matter on Best Practices in Undergraduate Research

Who better to put together a document on best practices in undergraduate research than the Council on Undergraduate Research? That was exactly the question posed at last summer’s CUR Business Meeting. Earlier in the year the CUR Executive Board had approved a plan to develop such a document. Entitled “Characteristics of Excellence in Undergraduate Research” (COEUR), it is envisioned to be a guide for both emerging and mature undergraduate research programs.

During the June Business Meeting at Washington University in St. Louis, CUR councilors were tasked with outlining the topics that should be included in such a document. Each division worked on this assignment within the context of their disciplinary areas. Then each division’s representative presented their results at a plenary session and submitted a report to the drafting group.

The four-person drafting group put together a draft of the document over the next several months. The draft was distributed in late October to the division representatives for evaluation and feedback. At 20 pages in length, the document covers a wide range of topics that are important to supporting undergraduate research. Topics include:

- **Campus mission and culture**—on the components of a campus culture that values and rewards undergraduate research
- **Administrative support**—on the many ways that administration can support undergraduate research
- **Research infrastructure**—on the appropriate space, equipment, and other resources needed
- **Faculty professional development opportunities**—on the importance of enabling faculty to remain current in their fields
- **Recognition**—on the importance of recognizing the integral role undergraduate research plays in educating our students
- **External funding**—on the importance of institutional encouragement and support for pursuing external funding
- **Dissemination**—on the importance of peer-reviewed as well as other forms of dissemination
- **Student-centered issues**—on best practices for supporting our students as nascent researchers
- **Curriculum**—on best practices for formally including research experiences in undergraduate curricula
- **Summer research program**—on the importance of robust summer research activities on campuses
Assessment activities—on the critical need for assessment of all undergraduate research-related activities

Strategic Planning—on the need for including support for undergraduate research within institutional strategic plans.

The final draft of the COEUR document is expected to be presented to the CUR Executive Board for approval in January 2012. Once that step is complete, the document will be distributed to a wide audience in hopes that it will have a real and significant impact on supporting undergraduate research programs across the country.

Richard Thompson
The College of Saint Rose

Kudos To:
Henrique Alves, Central Washington University: Henrique presented “Assembly and Operation of a Far-Infrared Laser Cavity” at the Washington Section of the American Association of Physics Teachers meeting in October. (Mentor: Mike Jackson)

Contribute to our Kudos Section! Send information about achievements, recognitions, new grants, promotions, moves, etc. for undergraduate physics and astronomy students and CURPA faculty to editor Nadine Barlow.

26th Annual NCUR
The 26th Annual National Conference on Undergraduate Research (NCUR) will be held March 29-31 on the campus of Weber State University in Ogden, UT, at the base of the beautiful Wasatch Mountains. The program committee received 3194 abstracts for the meeting, of which 111 were in the areas of physics and astronomy. Registration is now open—all conference information is at weber.edu/ncur2012/.

2012 CUR Conference

2012 Posters on the Hill
The 2012 Posters on the Hill event will be held April 24 at the US Capitol. Of the approximately 800 submissions, 48 were from physics and astronomy students.

Getting to Know the CUR Committees: CUR Fellows Task Force
Editor’s Note: With this issue, we are initiating a new feature where a CURPA councilor discusses the CUR committee on which s/he serves. We hope this feature will give you more insight into how CUR operates.

The CUR Fellows awards, established in 2000, are presented at the biennial Conference to two CUR members who have developed nationally respected research programs involving undergraduates.
Awardees have established outstanding records of obtaining funding for their work and their students that includes publishing their research findings with undergraduate co-authors. They reach out to students of all backgrounds, incorporate research activities into the courses they teach, and lead efforts to institutionalize research on their campuses and across the nation. In sum, they are leaders and role models for countless faculty and students. John Mateja from the P&A division was one of the two individuals selected for the 2006 CUR Fellows.

The CUR Fellows Task Force consists of a member from each division. Along with the responsibility for selecting the CUR Fellows, they revise the CUR Fellows criteria and evaluate the overall program. Mike Jackson has served on the CUR Fellows Task Force since 2005 and as the committee's chair since 2006.

Michael Jackson
Central Washington University

CURPA Communications:
In addition to our quarterly newsletter, the CUR Physics and Astronomy Division has a blog (cur-ph.blogspot.com/), a Facebook group, and a LinkedIn group. We welcome you input!

Undergraduate Research Week:
Undergraduate Research Week is coming up April 16-20. If you have ideas of what CURPA can do to celebrate that week, please contact Chair David McGee (mcgeed@tcnj.edu).

Elections Coming Up Soon:
It is the start of a new year and soon you will be receiving an email from CUR about elections for division councilors. Please read the background materials provided by the candidates and vote for your new Physics and Astronomy representatives.

The current CURPA councilors are listed below.

Your CURPA Councilors:
VJ Agarwal, Minnesota State University Mankato.
John Armstrong, Weber State University. CUR Nominations Committee.
Nadine Barlow, Northern Arizona University. CURPA News Editor.
Mark Biermann, Taylor University.
Horace Crogman, La Sierra University.
Chris Hughes, James Madison University.
Michael Jackson, Central Washington University. Co-Chair CUR Fellows Review Task Force.
Bryan Luther, Concordia College Moorhead.
Duncan McBride, National Science Foundation. CUR Treasurer and CUR Investments Committee.
David McGee, The College of New Jersey. CURPA Chair.
Terry Oswalt, Florida Institute of Technology.
Richard Thompson, The College of Saint Rose.
Hank Yochum, Sweet Briar College. CURPA Secretary and CUR Quarterly Editors Board.
Jie Zou, Eastern Illinois University.

CURPA News Deadline
CURPA News comes out quarterly and we welcome your contributions! Please send your submissions, comments, achievements, etc. to editor Nadine Barlow at Nadine.Barlow@nau.edu. Deadline for the Spring 2012 issue is March 1, 2012.