



## COUNCIL ON UNDERGRADUATE RESEARCH

Learning Through Research

May 19, 2009

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TO: Chairs of Physics/Astronomy Departments

Dear Colleague,

I am pleased to write to you about a very important development that was initiated by the Physics and Astronomy Division of the Council on Undergraduate Research (CUR) in its meeting in June 2008. Since June, the CUR Division of Physics and Astronomy, along with the Committee on Education of the American Physical Society, Sigma Pi Sigma, and the American Astronomical Society have all endorsed the proposition that “all undergraduate physics and astronomy majors should engage in research during their undergraduate years.” The following statement has been adopted by the CUR Physics and Astronomy Division.

**We call upon this nation's physics and astronomy departments to provide, as an element of best practice, all undergraduate physics and astronomy majors a significant research experience.**

**CUR Physics and Astronomy Division**

While worded slightly differently, similar statements were adopted by all of the professional societies listed above.

We believe that the implementation of this recommendation will have a profound and positive impact on undergraduate physics and astronomy education in the United States. In addition to gaining exposure to project design and the use of critical instrumentation and computational tools, research experiences teach undergraduates the analytical, complex problem solving, and communication skills they will need to remain competitive in the rapidly changing global marketplace, regardless of our students' ultimate career aspirations. We also believe that student engagement in undergraduate research leads to better retention and thus the APS call for “Doubling the Number of Physics Bachelors at US Colleges and Universities” can be achieved with greater certainty.

Your leadership in implementing this recommendation at your institution is greatly needed. In putting forward this call to all physics and astronomy departments, none of our societies expect each and every department to provide all of their students with individually faculty-mentored research experiences on their campuses. To the extent this is possible, we certainly urge you to provide these opportunities. But, we also encourage you to help your students identify off-campus opportunities at NSF REU sites, at our national laboratories, and in industry. Using all these approaches, we can implement the “research for all undergraduate physics and astronomy majors” recommendation without the added burden on our already tight fiscal resources and overly committed faculty in our departments.

While I have your attention, let me highlight two important services provided by your colleagues in the CUR Division of Physics and Astronomy.

**CUR Mentor Network:** This Network matches individuals seeking information about starting, sustaining, or re-initiating undergraduate research programs to experienced, tenured CUR faculty. Those requesting mentors may be newly hired faculty as well as established faculty who are interested in restarting a research program or moving in a new direction. A mentor can help answer questions about job applications, grant applications, tenure documents, or whatever professional needs they may have. A mentor may also be able to read drafts of grant proposals or papers and give constructive feedback. For interested faculty, a list of possible mentors will be provided based on mentoring needs, research interests, institutional similarities and/or regional proximity depending on the individual’s preferences. The contact information for the mentor networking in Physics and Astronomy division is included below:

Beth Cunningham ([bcunning@iwu.edu](mailto:bcunning@iwu.edu))

Kevin Riggs ([kriggs@stetson.edu](mailto:kriggs@stetson.edu))

**Departmental Review:** CUR offers consulting services to academic departments, divisions, and entire campuses. We provide these services by calling upon academic professionals who share our vision and goals, and who have thought deeply about undergraduate education. Our faculty and administrative consultants and program reviewer are experienced in visiting academic institutions where they listen to you and provide the help you need. For example, they can evaluate your curriculum, program, department, or division; assess or evaluate your undergraduate research, and suggest strategies to transform or rejuvenate a department. Some of the benefits of CUR reviews include:

- impartial third party credibility,
- a review process that is cost effective,
- structured review underwritten by CUR,
- sensitivity to issues relevant to predominantly undergraduate institutions,
- experienced reviewers whom you select to meet the needs of your institution and program, and
- availability of interdisciplinary, multi-departmental reviews.

For a departmental review or other consulting services, the contact information is

Gubbi Sudhakaran ([sudhakar.gubb@uwlax.edu](mailto:sudhakar.gubb@uwlax.edu))

We would like your assistance in notifying appropriate faculty members to become CUR members and take advantage of the CUR Mentor network. You may also wish to engage one or more CUR councilor/member for your next departmental review.

Please feel free to contact me ([Agarwal.vije@uwlax.edu](mailto:Agarwal.vije@uwlax.edu) or 608 785 8007) if you have questions about the Undergraduate Research statement or other matters. Thank you for your time.

Sincerely,

A handwritten signature in black ink, appearing to read "Vijendra (VJ) Agarwal". The signature is fluid and cursive, with a long horizontal stroke at the end.

Vijendra (VJ) Agarwal

Chair, CUR Division of Physics and Astronomy

(Professor of Physics and Associate Vice Chancellor

University of Wisconsin- La Crosse)