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The Council on Undergraduate Research as a Resource for Mathematicians

By Thomas Q. Sibley

The MAA CUPM Subcommittee on Research by Undergraduates would like to inform the mathematics community about the many organizations involved in the promotion of undergraduate research. In particular, attention should be called to the Council on Undergraduate Research (CUR), an interdisciplinary organization committed to fostering undergraduate research.

Started in 1978 by a group of chemists, CUR focuses on enabling undergraduate institutions to compete for research grants from the NSF and other governmental funding sources. Over time CUR has broadened its focus and developed an increasingly multidisciplinary flavor. During the 80s it added divisions for other natural sciences and opened its membership to faculty and administrators from all institutions. Our own MAA President, Joe Gallian, was a founding member of the Mathematics/Computer Science division in 1989. Since then, CUR has added divisions in the social sciences, an at-large division (primarily for administrators) and one for directors of undergraduate research programs.

Funding for undergraduate research has been a major focus for CUR. Joe Gallian notes that CUR was instrumental in lobbying for the Research Experiences for Undergraduates program (REU) after the Reagan administration phased out its predecessor (URP) in the 80s. CUR didn't just wait for government-funded REUs to bolster summer research opportunities. It also found corporate funding to support undergraduates doing summer research at colleges and universities. In recent years these funds have dried up, but they provided important interim support. Many schools now provide their own funding for undergraduate research, in addition to governmental and other funding.

CUR has some direct impact on undergraduates, even though CUR does not

have student members. "Posters on the Hill," a different sort of lobbying effort by CUR, showcases undergraduates talking about their research to senators and representatives. Recently, this successful program has been imitated at a number of state capitols.

Since 2001 the Mathematics/Computer Science Division of CUR has sponsored prizes for the best undergraduate research talks at the MAA and Pi Mu Epsilon paper sessions at MathFest. Although other organizations give prizes there, only the CUR prizes are specifically for original research.

Another event featuring undergraduate research, NCUR, is often confused with CUR. NCUR, the National Conferences on Undergraduate Research, sponsors an annual conference of the same name where undergraduates can present their research. Although CUR and NCUR as organizations talk to each other, they are distinct.

How can mathematicians benefit from CUR? Every two years CUR hosts a national conference on fostering undergraduate research, filled with workshops, talks and opportunities to interact with others committed to undergraduate research. (The next one will be June 21–24, 2008 at the College of St. Benedict in Minnesota.) Secondly, mathematicians can use electronic and in-person connections through CUR to develop interdisciplinary collaborations for undergraduate research. Also, CUR provides information and advice on supporting and mentoring undergraduate research in its journal, pamphlets, institutes, web pages, and personal exchanges.

Some broader initiatives by CUR benefit all faculty members mentoring



undergraduate research. CUR supports the institutionalization of undergraduate research throughout colleges and universities. For instance, a CUR institute "Insti-

tutionalizing Undergraduate Research" helps teams of faculty and administrators make undergraduate research a permanent focus throughout a school (<http://www.cur.org/institutes>).

Schools that are institutional members get several individual memberships, which tend to go to administrators. These memberships can help educate administrators on the importance and challenges of undergraduate research, as well as the range of what research is. Since too few non-mathematicians understand the nature of mathematical research, mathematicians can benefit from any such increased understanding and appreciation. We would also suggest the article by the CUPM Subcommittee on the costs and benefits of mathematics research by undergraduates to faculty and the institution. See <http://www.maa.org/cupm/CUPM-UG-research.pdf>.

CUR welcomes everyone who wants to learn more about mentoring and supporting undergraduate research as well as all with ideas to share. Visit the CUR website at <http://www.CUR.org>.

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