

**NEWS—The National Academies
National Research Council**

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FOR IMMEDIATE RELEASE

**PROFESSIONAL MASTER'S DEGREE PROGRAMS IN THE SCIENCES SHOULD BE EXPANDED
AND COULD BOOST U.S. COMPETITIVENESS, REPORT SAYS**

WASHINGTON -- Policymakers, universities, and employers should work together to speed the development of professionally oriented master's degree programs in the natural sciences, says a new report from the National Research Council. Graduates of these programs -- which build both scientific knowledge and practical workplace skills -- can make a strong contribution to the nation's competitiveness, said the committee that wrote the report.

"Industry, government, and nonprofits need employees who have deep scientific knowledge as well as skills to apply that knowledge in innovative ways," said Rita Colwell, committee chair and Distinguished University Professor at the University of Maryland and the Johns Hopkins University Bloomberg School of Public Health. "A reinvigorated master's degree in the natural sciences can answer the demand for such science professionals and help ensure that the U.S. has the work force it needs to stay competitive. It's time to accelerate the development of these programs nationwide."

Master's degrees in many fields of the natural sciences traditionally have been embedded in the path to a doctorate rather than viewed as ends in themselves. But over the past decade, foundations and universities have worked together to develop new master's programs for students seeking professional skills for the global economy. These professional science master's (PSM) programs typically build communication and problem-solving skills along with advanced scientific knowledge, and they often include interdisciplinary training. Such programs do not replace traditional master's programs, the report notes, but augment them by serving students who have a different scientific career path in mind. There are currently over 125 PSM programs at more than 60 universities, according to the Council of Graduate Schools.

Although it is difficult to project the numbers of PSM graduates needed even in the near term, salary and placement data indicate strong and increasing demand, the report says. Over the last 10 years, salaries of master's degree holders in science and engineering have grown faster than salaries of those who hold either bachelor's or doctoral degrees. Banks and financial operations of industrial firms, the biotechnology industry, and defense firms are among those who have testified to a growing need for workers who fit the PSM profile, said the committee.

Scaling up existing programs and developing new ones will take a concerted effort by a number of parties, including Congress, the report says. In the 2007 America COMPETES Act, Congress authorized the National Science Foundation to develop a new program of grants to help four-year institutions create or expand PSM programs, though this program has not yet been funded. This initiative should be expanded beyond NSF to other major federal science agencies, such as the departments of Defense and Energy, the report says. Each agency should award grants to colleges and universities to begin PSM programs, and offer need-based scholarships for U.S. citizens who enroll in these programs. Congress should appropriate funds for this multiagency program beginning in fiscal year 2009.

State governments should also fund the creation and expansion of PSM programs to target particular state and regional needs, the report says. Philanthropic institutions should continue to play a role by offering matching funds for federal grants, assisting students with financial aid, and providing seed money for new programs. Professional societies in the natural sciences and science- and technology-based industry associations should develop strategies to address higher-education needs in their fields, and these plans should include PSM programs.

The report calls on universities to continue to develop these programs and offer incentives and support to faculty who participate. Employers, in turn, should be active partners in these efforts. For example, institutions should seek input from employer advisory councils on curricula, establishing internships, and mentoring students. And alumni with PSM degrees can contribute by building links between current employers and their former programs.

The study was sponsored by the Alfred P. Sloan Foundation. The National Academy of Sciences, National Academy of Engineering, Institute of Medicine, and National Research Council make up the National Academies. They are private, nonprofit institutions that provide science, technology, and health policy advice under a congressional charter. The Research Council is the principal operating agency of the National Academy of Sciences and the National Academy of Engineering. A committee roster follows.

Copies of [SCIENCE PROFESSIONALS: MASTER'S EDUCATION FOR A COMPETITIVE WORLD](#) are available from the National Academies Press; tel. 202-334-3313 or 1-800-624-6242 or on the Internet at [HTTP://WWW.NAP.EDU](http://www.nap.edu). Reporters may obtain a copy from the Office of News and Public Information (contacts listed above).

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