



PSM Activities Report Fall 2010

Council of Graduate Schools Professional Science Master's Project Team

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Overview

Since 2001, the Council of Graduate Schools (CGS) has been at the forefront of promoting the Professional Science Master's (PSM) program. CGS' current efforts include:

- connecting to the graduate education community through hosting semi-annual national meetings and participating in four regional CGS affiliate meetings as well as other meetings of importance to the PSM initiative
- processing official recognition of new programs and assisting program directors achieve such recognition
- developing quality assurance mechanisms to promote and support sustainability of the PSM brand
- advocating for PSM support to government leaders and policy makers
- communicating through newsletters and email, as well as service to key organizations
- encouraging wide recognition of the PSM brand.

The details of these activities follow:

Meetings and Presentations

Partnership for Public Service – April 13, 2010 – Carol Lynch, Sally Francis, and Leontyne Goodwin met with Tim McManus, Vice President of Education and Outreach, to discuss the evolving workforce needs of the federal government and efforts such as the Federal Service Student Ambassadors program which aims to increase interest in public service careers among college students. The PSM team and Mr. McManus exchanged information about the PSM

Initiative and Partnership for Public Service to consider areas of collaboration to address the federal government's workforce needs.

American Council on Education – April 21, 2010 – Carol Lynch attended the conference, “Keeping Women Scientists in the Pipeline,” and discussed the role the PSM can play.

Department of State – April 28, 2010 – Carol Lynch and Sally Francis met with Brian Nordmann, Director, Office of Biological Weapons Affairs, Bureau of Verification, Compliance, and Implementation, U.S. Department of State to explore potential synergies between the PSM program and the Foster Fellowship program at the State Department. Mr. Nordmann's meeting report indicated, “I would propose working a PSM Intern program in tandem, but separate, from the normal intern recruiting process.”

SUNY System-Wide PSM Workshop and New York Legislature Reception – May 17, 2010 – Carol Lynch and Michael Teitelbaum made presentations at a special SUNY PSM workshop in the State Capitol building in Albany. Following the workshop, there was a special reception for the SUNY PSM with state legislators. In addition to legislators, SUNY leadership, PSM campus and business representatives, were in attendance.

CGS/NSF Master's Workshop – May 18, 2010 –CGS and NSF co-hosted an invitational workshop titled, “The Role and Status of the Master's Degree in STEM” which served as the first national conversation on master's education in STEM. The workshop attracted about 88 participants including experts in graduate education, representatives from funding institutions, representatives from federal agencies, and representatives of disciplinary societies. Eleanor Babco presented an overview of master's education in STEM through the presentation of general enrollment, demographic, and STEM master's programs' statistics. Carol Lynch offered an update regarding the CGS PSM Initiative that included ongoing efforts to promote, sustain, and ensure that PSM programs become regular features of graduate education. Sally Francis served as the moderator of a session at the workshop, contributed to a white paper that was disseminated prior to the workshop and monograph that is currently in publication. Leontyne Goodwin managed the planning logistics relative to the workshop, contributed to the white paper and the monograph that is currently in publication.

National Science Foundation – May 26, 2010 – Carol Lynch and Debra Stewart from CGS met with Fae Korsmo, Senior Advisor to the Director to discuss the NSF programs in graduate education and advocated for continued inclusion of the PSM.

CGS PSM Advisory Board Meeting – July 10, 2010 – The Advisory Board meeting opened with Carol Lynch providing information about a report released by CGS in collaboration with ETS titled, *The Path Forward: The Future of Graduate Education in the United States*, which looked at the critical role graduate education plays in developing the creative innovators the U.S. needs for continued national prosperity and offers a series of recommendations. She highlighted some of the meetings CGS has participated in and provided updates about new PSM programs, including the first programs at HBCUs. Carol reported on the work of an ad hoc committee of the Board to explore the possibility of engineering programs being recognized as PSMs. The committee had recommended some revisions to the *Guidelines for Recognition as a Professional*

Science Master's Program that left the door open for PSM programs in engineering fields. Carol Lynch also displayed a graph that showed PSM programs by Carnegie Classification. About half of the PSM programs were located at research universities—with the majority of programs located at larger institutions—demonstrating that the PSM is becoming established at various types of institutions including both master's and doctoral focused institutions. Carol Lynch also noted that CGS hosted a summer intern, Ben Patterson, from SUNY Oswego, who was doing a wonderful job.

Nancy Vincent presented a summary of the Advisory Board Strengths, Weaknesses, Opportunities, and Threats Analysis that was conducted November, 2009. This prompted a discussion of the need for better surveys, better data from PSM programs, and brand recognition of the PSM to increase the awareness of employers about PSM programs and the qualifications of graduates of PSM programs. Don Langenberg gave an update of the National Professional Science Master's Association stating that it is a national association of PSM directors focusing primarily on providing a forum for people to come together and learn from each other. Carol explained a new project for PSM affiliation that is being run by CGS. CGS is convening meetings of two stakeholder groups to define criteria that programs must meet to qualify for PSM recognition and to recommend an organizational structure to carry out the process. Nancy Vincent worked on a broadly based research study looking at other kinds of degrees and programs and various means of establishing formal approval processes. This generated some discussion about the merits of various types of program recognition including approval and accreditation. Patty McAllister from CGS gave a legislative update explaining that the America COMPETES Act is under consideration for reauthorization this year. She also described activity at the National Science Foundation and at the Department of Energy. David Payne from ETS gave a presentation on the Personal Potential Index developed by the GRE program. Finally, Board members gave updates about their work with the PSM.

CGS Summer Workshop – July 10-14, 2010 – Carol Lynch, along with Pam Stacks from San Jose State University spoke at a Dean Dialogue on the topic of *PSM: Quality Control and Recognition*. They were assisted by Advisory Board members Linda Strausbaugh and Don Langenberg. Lisbeth Borbye from North Carolina State University and Joseph Benoit from University of North Dakota facilitated a hot topic session on *Serving Non-Traditional Students: PSM, Online, and Other Methods*. Both sessions were well attended.

Florida State PSM Advisory Board – August 20, 2010 – Sally Francis represented CGS at the first meeting of the Florida PSM Statewide Advisory Board in Orlando. Her presentation was titled, “Other State Initiatives – Purpose, Status, Importance.” The Board considered what its role should be in advancing the goal of establishing 28 PSM programs in Florida where there are currently 13 programs.

Gates Millennium Scholars – August 24, 2010 – Carol Lynch along with others from CGS met with new staff in the GMSP. Among other things they made sure the staff were aware of the PSMs and that they remain eligible graduate programs for Gates Millennium Scholars.

National Science Foundation Division of Graduate Education – Carol and other CGS staff met with the programs directors in DGE to discuss all their programs, including the Science Master's

Program. The SMP staff reported that they have only heard positive comments within NSF about the PSM since the competition was run. The applications were excellent and they could easily have funded twice as many based on quality.

NPSMA National Advisory Board – October 4, 2010 – Carol Lynch attended the meeting at IIT in Chicago. Topics discussed included emerging fields for new PSMs and engaging more broadly with employers, especially industry.

New PSM Programs

The CGS PSM team approved the following 44 PSM programs since the spring report:

Antioch University New England, Sustainable Development and Climate Change

Appalachian State University, Nanoscience for Advanced Materials

Buffalo State College, Professional Applied and Computational Mathematics

California State University, Monterey Bay, Coastal and Watershed Science and Policy

Florida Atlantic University, Medical Physics

North Carolina State University

Electric Power Systems

Biomanufacturing

Climate Change and Society

Northern Arizona University, Climate Science and Solutions

Rochester Institute of Technology

Imaging Science

Environmental Science

Computer Science

State University of New York at Buffalo, Biophysics and Natural and Biomedical Sciences

University at Albany, State University of New York, Forensic Biology

University of Florida, Pharmaceutical Chemistry and Forensic Science

University of Idaho

Restoration Ecology

Wildland Fire Ecology and Management

Grassland and Shrubland Ecosystem Science

Sustainability Science

Environmental Contamination

Management of Regulated River Systems

Ecohydrology Science and Management

Climate Change Science

Water Resources Management

University of Maryland Eastern Shore, Quantitative Fisheries

University of Massachusetts Boston, Environmental Sciences

University of Massachusetts (Inter Campus-Amherst, Boston, Dartmouth, and Lowell)

Biomedical Engineering and Biotechnology

Coastal and Ocean Administration, Science and Technology

University of Massachusetts Lowell

Ergonomics and Safety
Epidemiology
Environmental Biotechnology
Clinical Lab Sciences
Cleaner Production/Pollution Prevention
Project Management in Life Sciences
Biosafety, Occupational, Environmental Hygiene
Radiological Sciences and Protection
Applied Biotechnology

The University of Queensland, Biotechnology

University of the District of Columbia, Applied Statistics and Water Resources Management

Washington State University, Molecular Biosciences.

CGS staff reviewed applications for recognition to ensure they met each of the criteria listed in the *Guidelines for CGS Recognition as a Professional Science Master's Program*, communicated with the programs, and referred applications to an external committee for a decision when necessary. If all criteria were met, the programs were approved for PSM recognition, listed on the sciencemasters.com website, permitted the use of the PSM trademark, and provided with promotional materials and support. The PSM team also participated in calls with many institutions seeking specific information about developing PSM programs as well as securing affiliation as a PSM.

Project for PSM Affiliation

CGS has undertaken a project to develop a sustainable process for quality assurance that is widely accepted in the academic and professional community. As part of this project, a series of stakeholder sessions is being held to identify such a process and to specify criteria that will be utilized in its implementation. These stakeholders include academic administrators; current PSM program directors; employers from the business, nonprofit, and government sectors; professional society leaders; PSM alumni; as well as representatives from CGS, the Sloan Foundation, and the National Professional Science Master's Association. In order to provide both background and a framework for these deliberations, the PSM team wrote a white paper to summarize the results of research to collect detailed information about different types of quality assurances processes in other fields of study.

The first stakeholders meeting held June 29, 2010, resulted in a list of principles to guide the development of criteria for PSM recognition. These criteria were also drafted by this group and distributed broadly for comment between July 22 and September 10, 2010. Feedback was given by program directors, deans, students, faculty members, employers, policy makers, alumni, and others. A second stakeholder group met September 30, 2010 to review the comments to the criteria and to recommend a process for future PSM recognition. A third meeting will occur on November 9, 2010 to finalize the criteria and to make a formal recommendation for establishing a sustainable process for PSM recognition.

CGS will continue to manage and staff the existing affiliation process until the new process is implemented.

Federal Agency and Policy Initiatives

The CGS Government Relations staff continues to support the PSM and has met with Congressional staff in both the House and Senate to advocate for the inclusion of language supportive of graduate education, including the PSM, in the America COMPETES Act which is under consideration for reauthorization this year. The House bill, which passed in May, includes language that would authorize NSF to award grants to programs “in support of creation, improvement, or expansion of innovative graduate programs such as science master's degree programs.” The Senate bill, as it stands, does not contain such language but if a Senate bill passes, that provision would be among the items the House and Senate teams would negotiate between them. GR staff members are also working with the Department of Energy to provide information about the PSM with the hope that funding will be included in their proposed RE-ENERGYSE program. Information about the PSM was included in the CGS/ETS report, *The Path Forward: The Future of Graduate Education in the United States*, released in April. The report continues to be the focus of events and discussions and has been widely disseminated to policy makers as well as university and business leaders.

Other Outreach Activities

Society for Advancement of Chicanos and Native Americans in Science – September 30-October 3, 2010 – As part of the national recruitment effort, CGS again secured a booth at the SACNAS National Conference, *Science, Technology, and Diversity for a Sustainable Future*, which attracted 4,000 students, postdocs, educators, administrators, and researchers in science, mathematics, and engineering. John Nishio from California State University, Chico and Dan Chatham from Keck Graduate Institute of Applied Life Sciences staffed the booth. Several programs contributed their own program brochures for the effort and CGS contributed flyers, pens, and key chains.

PSM Conference Calls – Monthly calls are organized by Michael Teitelbaum at the Alfred P. Sloan Foundation to provide an opportunity for organizations leading the PSM initiative to communicate about their respective activities. Participants include Carol Lynch and/or Eleanor Babco of CGS, Heather Chikoore of the National Conference of State Legislatures, Erin Lamos from the National Governor’s Association, Don Langenberg and Elizabeth Friedman of the NPSMA, Beth Amos from the CSU system, and Sheila Tobias. Leontyne Goodwin prepares and distributes notes from these calls.

National Professional Science Master's Association – Nancy Vincent and Don Langenberg of NPSMA conduct monthly conference calls to keep each organization apprised of their activities. Carol Lynch is a member of the NPSMA Advisory Board and Don Langenberg serves on the CGS PSM Advisory Board.

Email Communication –The CGS team continues to use an email distribution list to provide updates of PSM activities to all programs, to communicate information that may be of interest, and to solicit feedback. Since the spring report CGS communicated the following via email:

- An article was published by the American Physical Society in the May issue of *APS News* titled, “Training Physics Professionals for the Nonacademic Workforce,” and highlighted several physics PSM graduates.
- An article, “New Rules for Educational Internships,” was published in *The Chronicle of Higher Education* and addressed the issue of unpaid internships and employers' and colleges' roles under federal law.
- An announcement was sent on behalf of Lily Chen, highlighting the *Personalized Medicine 3.0 – Targeting Cancer* conference. *Personalized Medicine 3.0 – Targeting Cancer* was a one-day conference and networking opportunity for health and industry professionals, educators, and scientists to learn how the new genomic medicine will affect work and life.
- All program directors/coordinators were notified that NSF was seeking proposals for a grant program in support of internships in mathematics.
- An introductory letter was sent to those programs that were selected as National Science Foundation Science Master’s Program Award recipients congratulating them and informing them about how to apply for PSM recognition, provided they were eligible. The letter was co-signed by Carol Lynch and Elizabeth Friedman, President of the National Professional Science Master’s Association.
- An announcement about the Partnership for Public Service accepting applications for the *Federal Service Student Ambassador* program was sent.
- Program directors/coordinators were notified of the *AGMUS 2010 Research Symposium*.
- A draft of new *Criteria for Professional Science Master's Programs* was disseminated. An electronic survey form link was provided for those interested in providing feedback.
- A commentary, “Needed: Support for Professional Science Master's Degrees,” was published in *The Chronicle of Higher Education*. This article discussed the merits of the PSM, as well as offered recommendations on how to sustain the success of PSM programs.
- All program directors/coordinators were notified about the *Call to Serve Webinar Workshop Series* from the Partnership for Public Service. This workshop had two sessions on finding and applying for full-time jobs and internships with the federal government designed specifically for a student audience.
- A press release was issued to inform the public that the number of PSM programs had topped 200 and institutions with PSM programs had surpassed 100. The number of programs had almost doubled in two years, growing 36% so far this year with programs located in 31 states, as well as in Canada and the UK.
- Program directors/coordinators were notified that the Office of Naval Research was seeking proposals for a grant in support of education programs in science, technology, engineering, and mathematics.
- An announcement on behalf of NPSMA for their Second Annual Conference, *Professional Science Master’s Degrees: Environmental Solutions and Workforce Development* was sent.

- An announcement on behalf of Sheila Tobias requesting information about ethics related courses for a research report was sent.
- Program directors/coordinators were notified of a *Student/Jobseeker Webinar* from the Partnership for Public Service for trainings meant to help students with a federal job search.
- Program directors/coordinators were notified of the application dates for the *Presidential Management Fellows*.

Media Coverage – A press release was issued by CGS on September 7, 2010 announcing that the number of institutions offering PSM programs had surpassed 100 and that the total number of programs topped 200.

The following is a list of interviews given or articles that were authored or solicited by the CGS PSM team since spring. All articles relating to the PSM are listed on www.sciencemasters.com.

Babco, E. L., Vincent, M. N., and Langenberg, D. N. (2010, May). “Training Physics Professionals for the Nonacademic Workforce.” *APS Physics*, 19 (5), 8. Retrieved from <http://www.aps.org/publications/apsnews/201005/loader.cfm?csModule=security/getfile&pageid=214375>.

Borbye, L. and Carter, M.. (2010, May) “Integrating Professional Abilities and Interaction with Employers in an Outcomes Assessment Plan: An Example from Professional Science Master’s Programs.” *CGS Communicator*, 43(4), 5-6.

Gitig, D. (2010, June). “Professional Science Master's Degrees.” *Science Careers*. Retrieved October 13, 2010 from http://sciencecareers.sciencemag.org/career_magazine/previous_issues/articles/2010_06_18/science.opms.r1000091.

Goodwin, L., Francis, S., and Lynch, C. (2010, October). “PSM Recognition Project: Stakeholders Recommend Principles and Criteria for PSM Recognition.” *CGS Communicator*, 43 (8).

Teitelbaum, M. S., and Lynch, C. (2010, August). “Needed: Support for Professional Science Master's Degrees.” *The Chronicle of Higher Education*. Retrieved from <http://chronicle.com/article/Needed-Support-for-Profess/123906/>.

Daub, Richard. “The PSM.” *Lab Manager Magazine*, October 7, 2010.

Promotional Materials – Flyers geared to employers, policy makers, and students continue to be distributed to new PSM programs and are available on the [sciencemasters.com](http://www.sciencemasters.com) website.

The CGS PSM team provides a speaker’s packet and other resources on the [sciencemasters.com](http://www.sciencemasters.com) website. This information is regularly updated.

Josh Mahler maintains and regularly updates the [sciencemasters.com](http://www.sciencemasters.com) website.

Future Activities

A pre-meeting workshop will be held at the CGS Annual Meeting on December 1, 2010 focusing on funding of PSM programs.

Carol Lynch will be a keynote speaker at the NPSMA Annual Conference, *Professional Science Master's Degrees: Environmental Solutions and Workforce Development*, November 17-19, 2010.

The next meeting of the CGS PSM Advisory Board will be December 1, 2010 in Washington, D.C., in conjunction with the CGS Annual Meeting.