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Mastering the Job Market

By Beryl Lieff Benderly

Professional science master's degrees, like the Master of Business Administration degree on which they are modeled, are designed as terminal credentials for people seeking science-based careers outside of academe.

For most young scientists on the Ph.D./postdoc track, deciding which of several lucrative job offers to accept isn't an issue that comes up all that often. But for many in one of the professional science master's (PSM) programs now proliferating around the country, it is literally a \$64,000 question. "They get multiple offers," often at salaries around that figure, says Christine Sjolander, associate vice president for enrollment management and director of career services at Keck Graduate Institute of Applied Life Sciences in Claremont, California. PSM alumni "are so in demand that we're actually trying to boost our enrollment because we can't keep up."

"In the last 2 years, all of our students who've wanted jobs find [them] within 3 months of finishing," she continues. Nationwide, nearly three-fourths of new PSM graduates go to work right after graduation, frequently at salaries reaching into the 60s, according to a survey of the classes of 2004 to 2006 by the Council of Graduate Schools (CGS). Many of the remainder are already employed while working on their degrees, and some opt to pursue further full-time graduate study. Five years out, Sjolander says, graduates "have in almost all cases been promoted at least once or twice. Many have changed opportunities. They are really in demand."

Unlike traditional graduate training, which prepares students to be independent researchers despite the continuing dearth of actual openings, PSM programs offer "another way to stay in science" by preparing students for the wide range of opportunities currently available in industry, government, and the nonprofit sector, explains Eleanor Babco, co-director of CGS's PSM Initiative. Unlike the "consolation prize" master's degrees that were long handed out to students leaving Ph.D. programs, she continues, PSM degrees, like the Master of Business Administration degree on which they are modeled, are designed as terminal credentials for people seeking science-based careers outside of academe.

Two years at the intersection beats six at a dead end

Usually lasting 2 years, PSM programs combine graduate-level science courses with business, management, and other subjects related to specific industries. The requirements include an internship in a relevant "real world" setting--a connection that frequently turns into a permanent job. More than 120 programs at 63 institutions across the country offer training in applied aspects of biology, chemistry, physics, mathematics, and other sciences for work in biotechnology, informatics, national security, ecology, energy, forensics, finance, and other fields.

Trained "at the intersection of science and business," graduates keep "one foot in the lab, one foot in the marketplace," says Megan Lehrkamp, who received her degree from the University of Arizona's applied biosciences program and now works as a manager at Ventana Medical Systems, a manufacturer of cancer-detection devices, in Tucson. "If you're interested in knowing about both" science and business, "a Ph.D. is not going to be the right route for you," she continues. "I knew I didn't want to stay in the lab for my entire career."

That's also how Kevin Bugin felt as he finished his bachelor's degree in biology and made plans to enter a traditional graduate program. "That was really all I knew at the time, do that Ph.D. and that postdoc track, and then, when I'm 35, maybe I'll get a nice job." He knew he wanted a career using the science he loved but had realized during an undergraduate research project that bench work "didn't seem like a fit for me." One day while searching the Internet, he happened upon the PSM program at American University (AU) in Washington, D.C. "I saw the possibilities and completely changed my mind," he says.

The combination of "hard-core science," business, and regulatory affairs courses he studied at AU, along with an internship at the U.S. National Institutes of Health's technology-transfer office, prepared Bugin for his goal of "figur[ing] out how a drug goes from bench to bedside and maybe mak[ing] the process better." A professor's recommendation pointed him toward a job immediately after graduation. Now that he works on the regulatory side of drug development at Amarex Clinical Research in Germantown, Maryland, he says, "I've found what I love to do." And he believes he saved a decade getting there.

"I've talked to [former] postdocs, people who had made it into pharmaceutical research companies and [are] managers of research groups," he says. "They've told me they don't use any of their Ph.D.-specific science anymore. They really wish they could have gone straight to the real-world applications instead of doing research for 5 or 10 years." But, Sjolander says, some Ph.D.s and international M.D.s--who are often interested in posts at small start-up companies--have enrolled in PSM programs to learn "the business side."

Pluses and minuses

Alumni are not the only ones pleased with the programs. PSM training "actually is more in tune with the kind of work we do" than traditional graduate school, says Raymond Phillippi, senior manager of health services and outcomes research at BlueCross BlueShield of Tennessee in Chattanooga. Phillippi provides internships for students in the health care informatics PSM program at Middle Tennessee State University in Murfreesboro and supervises an MTSU PSM graduate who is doing "an exceptional job." With holders of traditional graduate degrees, on the other hand, "often we ... do a lot of training to bring them up to speed," Phillippi continues. "Often, they don't have any health care knowledge or experience, [and] their analytical skills are not as developed" as those of PSM graduates, who arrive with "business knowledge as well as research and analysis knowledge. That's a difference that I think is very useful."

Lehrkamp has watched one of her employees grow professionally while pursuing a PSM degree part-time. The employee, Lehrkamp says, has developed an "ability to see the business side, ... [to] understand more about why we made certain decisions, where we have to balance between a

science and business." The PSM also helps job applicants differentiate themselves in a market flooded with MBAs, says Pam Gao, a senior vice president and portfolio manager at Putnam Investments in Boston and a graduate of Worcester Polytechnic Institute's PSM program in financial mathematics.

The PSM Initiative, funded by the Alfred P. Sloan Foundation, began only in 1997, and many institutions began granting degrees only in the past 5 years. Programs generally have some ties with industry and provide students with help in their job searches, yet many employers are still unfamiliar with the PSM concept. "My gut feeling is that they are just getting acquainted" with it, Phillippi says. "We certainly had no knowledge of it until we were approached by Middle Tennessee for support in developing the curriculum." He expects, however, that as word of the new degree spreads ever further, "demand would get greater and greater." His own company now encourages employees to pursue the degree part-time, with half a dozen doing so currently.

Unlike traditional graduate programs, which support science students on fellowships and professors' grants, PSM programs, like law, business, and other professional schools, usually expect students to pay their own way. Paid internships can cover some costs, and graduates' earnings may justify taking on debt for tuition and expenses, the CGS survey suggests. Some institutions offer financial aid. And in certain places, "demand for graduates is so high that employers are providing full tuition," the survey notes (although it does not reveal where those places may be). For students seeking a pragmatic route to a career involving science, a PSM merits serious consideration.