

Where Science Meets Business

A Niche Program for Science Majors

By Susan McGinley

Medical school, academic research—or maybe something else? Students majoring in the biological sciences often don't know about the wide range of jobs available in their field, and most college science programs don't prepare them to enter the workforce in nontraditional positions.

Thanks to an educational initiative spearheaded by the Alfred P. Sloan Foundation, career options in the sciences are expanding nationwide. At the University of Arizona, the Professional Science Master's (PSM) degree in Applied Biosciences prepares graduates for such varied careers as clinical trials administration, project management, forensics, controlled environment agriculture and other new and emerging fields.

"A lot of people go into science and really like it, but they don't want a Ph.D. They do want a career that uses their science knowledge though, and what they're interested in still requires an advanced degree," says Lindy Brigham, program coordinator for the applied biosciences master's in the College of Agriculture and Life Sciences. Other PSM degrees at the UA include applied and industrial physics, and mathematical sciences, both in the College of Science.

"The PSM programs were developed to be 'science plus'—they include all the skills you need to support a science-based business," Brigham says. "While many of the careers our graduates find are in

academia, more are in industry. The goal is to help scientists speak the language of business."

Each student completes a 36-unit individualized plan of study that includes selected courses in the biological sciences, business courses developed specifically for the program by the UA's Eller College of Management, an internship, and a special project. There is also an option to complete a certificate in entrepreneurship.

"We ask students where they want to go, and then we figure out how to get them there," Brigham says. "They determine what kind of job they want and start working on it from day one."

Alaina Levine, director of special projects in the College of Science, administers the business portion of the curriculum, including the course "Topics in Entrepreneurship for Scientists."

"A major goal of the professional science master's program is to ensure our students graduate with professional development and leadership skills that allow them the opportunity to strategically shine in their careers," Levine says. "We provide cohort experiences that achieve this aim. Workshops on subjects such as business etiquette, negotiation, networking and leadership development, along with mentoring opportunities, one-on-one meetings with industry partners and attendance at important industry conferences give our students an

edge to succeed, unparalleled in a traditional science master's."

Along with coursework, internships are a critical component of the PSM degree, making the program very "hands-on."

"It's how they're getting the jobs," Brigham says. "For example, we're supplying students for people who need bioinformatics—extensive electronic data management in the life sciences—in one of our laboratories in the BIO5 Institute on campus." The BIO5 Institute conducts research in biotechnology that brings together five disciplines—agriculture, basic science, engineering, medicine and pharmacy. Biotechnology is one of the industry clusters in Southern Arizona.

In addition to bioinformatics, the applied biosciences degree includes such specialized options as technology transfer, regulatory issues, quality assurance and biosafety, clinical trials management and controlled environment agriculture. Other options can be developed as well.

"We're developing a skilled workforce for Southern Arizona," Brigham says, "one that we hope will attract more industry to the region and contribute to the state's economic development, which is part of the BIO5 mission."

A lot of the internships lead to full employment, according to Brigham. One student who interned at the Dial Corporation in regulatory affairs was hired into a permanent position immediately upon graduation.

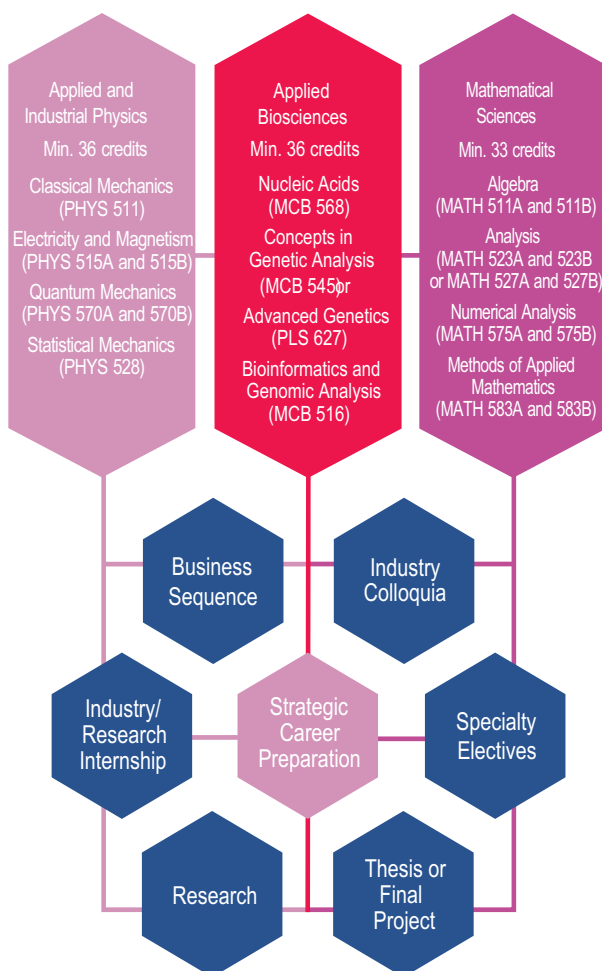
"Our best-case scenario is that the students are offered a job based on their internship," Brigham says.

Students enter the professional science master's program in different ways. A few come directly after graduating from college, but most have had experience in the real world prior to enrolling.

"We also work directly with industry, getting people who are already employed to come in for the advanced degree," Brigham notes. For example, Ventana Medical Systems regularly sponsors several of their employees who go through the program.

The Professional Master's Degree Program

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So far, 36 students have graduated with PSM degrees in applied biosciences. One graduate found a job in technology transfer—taking concepts from the academic world to the business world—at the Scripps Institute in California. Another student became director of intellectual property and project planning (patenting of proprietary information, knowledge or inventions) at a company in Tucson, Arizona, making sure personnel comply with the FDA and EPA in drug development.

Other jobs graduates have taken include licensing associate, regulatory research coordinator, quality assurance associate,

laboratory manager, clinical trials manager, senior manager of business development and biosafety officer. Some students have even developed their own businesses.

The PSM degree in applied biosciences stands on its own as direct preparation for a career, and it has a job placement rate of more than 90 percent. Most students have a job immediately upon graduation; some have jobs even before graduation. ❖

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THE PROFESSIONAL SCIENCE MASTER'S MOVEMENT

Offered through the College of Agriculture and Life Sciences (CALS) and the College of Science, the degree in applied biosciences is one of three professional science master's programs available at the UA. The others are mathematical sciences applied and industrial physics. All are part of a national movement, spearheaded by Sheila Tobias and the Alfred P. Sloan Foundation, to combine science and business courses with practical internships to lead students directly into careers upon graduation. Tobias, author of *Rethinking Science as a Career*, has worked extensively to expand career opportunities for trained scientists. The program received approval from the Arizona Board of Regents in 2001.

"We're part of 101 programs around the country at 50 institutions," says Lindy Brigham, coordinator for the PSM in the UA College of Agriculture and Life Sciences.

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