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Sometimes it's hard to see the big picture through a microscope. Promega's Mark Harms hopes his newly earned master's degree in biotechnology will help.

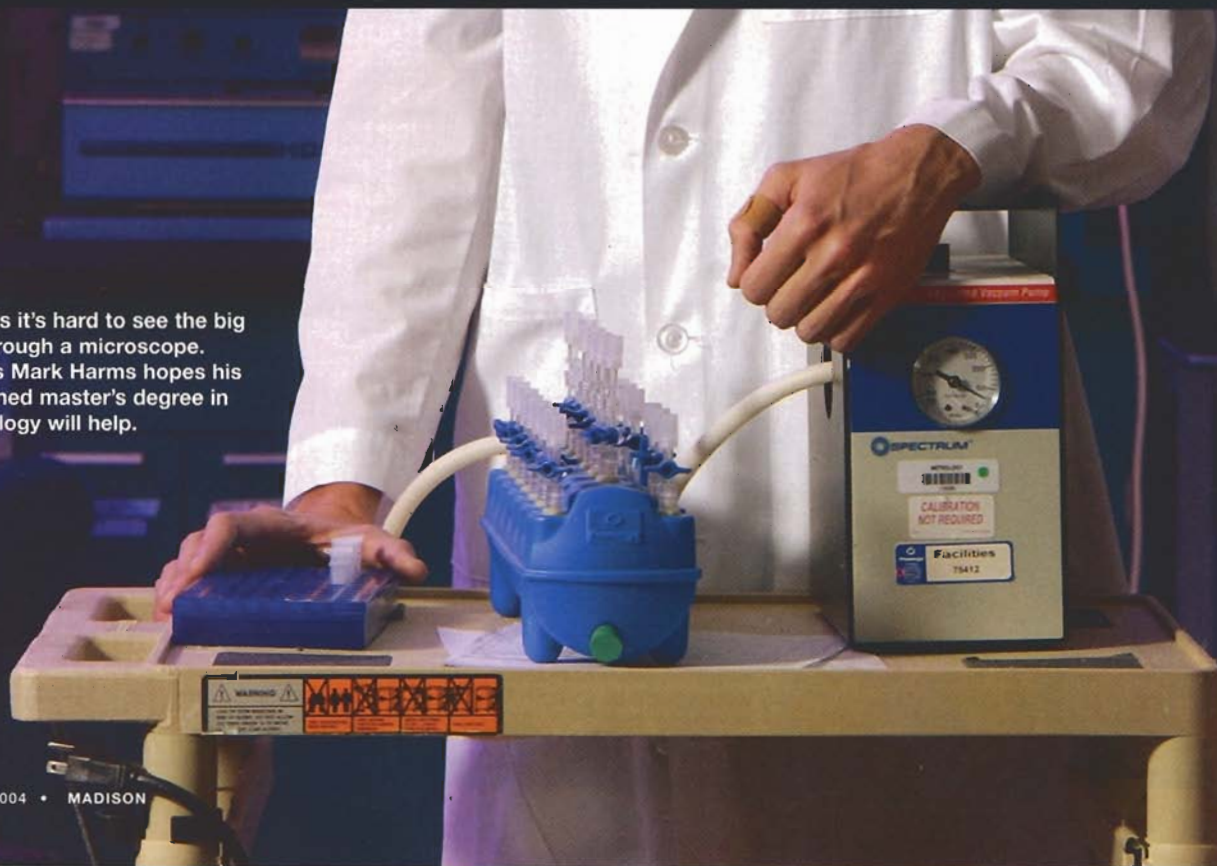


PHOTO BY MARTHA BUSSE

Higher learning takes on high-tech in UW's new biotech master's degree program

By Melanie Radzicki McManus

venture capitalists drool, and the ins and outs of the patent process.

Such a cross-disciplinary approach to biotech is considered critical in Wisconsin and the Midwest, because we don't have a whole lot of business professionals experienced in working with the biotechnology industry. If Harms wants to start his own company someday and can't find a local accountant, lawyer or marketer who has some experience in the biotech industry, he'll at least have some knowledge about how to proceed in these areas. And UW officials hope the program will also be attractive to non-science professionals interested in working with biotech clients, so eventually there will be a pool of local experts scientists can tap into.

"Biotechnology as an industry can't stand alone," says Kurt Zimmerman, program administrator.

The 10 students in the program's inaugural class, which just graduated last month, couldn't agree more. Harms says the most valuable thing he learned is that you can't view biotechnology as simply science. "A novel scientific technique won't guarantee you business success," he

The master's program must be filling a need; the class of 2005 has 20 members, double the number in Gross and Harms' inaugural class. Of those 20, two students left promising careers in Michigan and California and reestablished themselves here just so they could enroll in the program – a fact, says Zimmerman, that speaks to both UW-Madison's international reputation in biotechnology and the uniqueness of the program, which includes team teaching by university professionals and local and national industry experts.

While the program is specifically geared toward the working professional, it still requires a substantial time commitment: classes are held every other week from Thursday evening through Saturday morning for two years, during which time students must earn 24 credits in such varied programs as molecular technologies, biotechnology, law and society, and business of biotechnology. And then there's the price tag: a cool \$25,000.

Luckily, employers recognize the program's value and typically subsidize a portion of the tuition for their employees. And members of the inaugural class,

SCHOOL

Mark Harms received a bachelor's in biological science from Northwestern University, then worked a couple of months as an assistant microbiologist at Abbott Laboratories before signing on with Madison's Promega Corporation in 2000, where he's currently a production scientist. Sounds like a solid start for a career in the life sciences, yet when Harms joined the University of Wisconsin – Madison's inaugural master's degree in biotechnology class in the fall of 2002 as a career enhancement, he realized his focus had been far too narrow.

Targeted at Wisconsin scientists looking to move into management positions within their companies, the new master's program takes a novel approach: rather than teaching students strictly about the scientific side of the increasingly hot biotechnology field, the curriculum also thoroughly explores the legal and business side. Students like Harms, then, can pull back a bit from their area of expertise and learn equally valuable lessons such as creating a business plan that'll make

says. "I've been focusing on 'gee whiz' scientific technologies these past years, when it's actually the more mundane aspects of running a business that lead to success."

Gabe Gross, an associate attorney at the law firm of LaFollette, Godfrey & Kahn, was one of the few students in the class of 2004 who wasn't a scientist. Gross joined the program because he works mainly in intellectual property law and often with biotechnology clients; he figured he could better serve these clients if he knew a little bit more about their industry. But while Gross certainly learned a lot about the scientific side of the biotech industry, he was more surprised to learn the importance of some necessary business skills, like how to best manage your patent portfolio when a lot of your key patents near expiration.

"The program really helped me view biotech companies and their goals from their perspective, rather than from the perspective of an outside attorney," he says. "It was a real eye-opener."

considered guinea pigs by the university, were given a 50 percent tuition break. Even if they hadn't gotten such a hefty discount, the program would have been worth it for Jenny Fronczak.

Fronczak was a bench scientist at Invitrogen Corporation when she started the program in 2002 and was promoted to manufacturing group leader a year later. "I think I would have eventually gotten that position," she says, "but being in the master's program definitely accelerated the process for me."

Like the others, Fronczak appreciated the program's cross-disciplinary approach. But she also gives high marks to the experienced guest speakers, or team teachers, brought in for nearly every session. Discussing intellectual property rights today? Then Nancy Block, licensing manager of WiCell Research Institute, will be the guest speaker. Studying how to launch a start-up? Listen to Barbara Israel, chief operating officer of four-year-old Platypus Technologies, who just went through that whole process.



Jenny Fronczak attributes her promotion at Invitrogen to her work in the master of science in biotech program at UW-Madison.

Ten students comprised UW-Madison's inaugural master of science in biotechnology class; all of them received their sheepskins last month. The second graduating class has 20 students, two of whom relocated to Wisconsin just so they could enroll in the novel program. Here's a quick look at the program's first two classes.

Class of 2004

No. of students: 10
Gender: 6 male, 4 female
Avg. years of work experience: 5.3
Avg. GPA at admission: 3.1

Class of 2005

No. of students: 20
Gender: 10 male, 10 female
Avg. years of work experience: 10.25
Avg. GPA at admission: 3.31

Interested in becoming a member of the class of 2007? Contact Kurt Zimmerman, program administrator, at (608) 262-0685 or go online to www.ms-biotech.wisc.edu.

Zimmerman is perhaps proudest of the fact that the master's program really takes a hard look at legal and ethical biotechnology issues, areas other schools typically omit. One of the first classes new students take, in fact, is "Principles and Practice of Biotechnology," team taught by Richard Schifreen, director of technology and business development at Promega; Alta Charo, assistant dean of the UW-Madison law school and internationally known for her work in bioethics; and Carl Gulbrandsen, managing director of the Wisconsin Alumni Research Foundation. As part of the course, students debate legal and ethical biotech issues. "Having an understanding of the ethical implications associated with biotechnology, and knowing how to effectively debate those issues is a critical part of leadership," says

Zimmerman.

This fall, Zimmerman says 24 students will be admitted to the 2006 program, another increase. But he wants to keep class size relatively small to ensure a high-quality experience. Gross predicts the program will quickly gain a stellar national reputation, attracting top students from a variety of backgrounds. That's certainly a possibility; Zimmerman says this fall's new class is more competitive than the first two.

But whether or not the program becomes highly selective, many industry insiders are glad to see interest focused on biotechnology. "This kind of a program was critically needed to move the industry forward," says Harms. "The biotech field can't grow and succeed on its own."

Melanie Radzicki McManus is a contributing writer to *Madison Magazine*.

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