

## Commentary

# School for the Bilingual: Dual Master's Degrees in Business and Biotech

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**Abstract:** Advanced degrees that combine a master's in business with a master's in biotechnology are popping up at a number of universities. The programs aim to churn out students who will bridge the gap between scientists and managers at biotech companies. This article explores these dual degrees, the students' skills when they graduate and what they can do for the biotech industry.

## Introduction

Biotech industry experts have long lamented the gap between scientists and business managers at many companies. Academia who build start-ups based on their research discoveries often have no idea how to run a business. Managers often don't fully understand the science behind their companies' products [1]. Communication between the groups gets mired in the jargon of both fields.

Government officials and industry executives have called for universities to produce students with both science and management expertise [2]. Students have also demanded an option for a dual degree. In response, schools are developing dual-degree master's programs that combine business and biotech. So far, the programs only accept a handful of students each year, but most say their rosters are growing.

The first students to enroll in the programs are graduating now, and companies are hoping they will bring new and versatile talent to the biotech workforce. Local governments hope the students will boost budding biotech clusters and local economies.

True, a few semesters of grad-level courses hardly makes a scientist out of businessperson, or a manager out of a researcher. And no textbook can teach the nuances of schmoozing necessary for making business deals. But the first recipients of these degrees are advancing their careers and building startups. Whether they could have done it without spending tens of thousands of dollars on advanced education, we may never know.

## The curriculum

The purpose of almost any business-of-science program is to teach students to think beyond the academic world and to be more business-minded. Students should understand how to turn technology into products and to how to communicate complicated ideas to non-specialized audiences. But accomplishing this in the academic environment can be tough.

University administrators say admitting the right students is the key. Applicants who are passionate about both business and science and who have somehow noticed the gap that exists between scientists and executives are the most promising.

University of Pennsylvania initiated its dual degree program in 2003 after administrators noticed that many students in the business school were enrolling in biotech courses or getting second master's in a science field, says Scott Diamond, director of Penn's biotechnology program.

But many people have talent in one area or the other, not both, say program directors. Others are not far enough along in their careers to realize the importance of having expertise in both areas. To sift through the applicants, some schools look for those with work experience and an undergraduate degree in science. For example, RMIT in Melbourne, Australia requires a degree in a science field and at least three years of industry work experience.

Dual degrees can take anywhere from one to three years and up to more than 60 courses to complete, depending on the university. Most programs offer a part-time schedule for employed people who want to keep their jobs.

The courses teach skills such as how to manage a team, patent a discovery, balance risk and network with investors. Students also spend time in the lab studying molecular biology and biochemistry.

Some of the more interactive programs place students in internships. Others hire industry executives and investors as guest lecturers. The University of Calgary in Alberta, Canada brings in biotech experts every week to have lunch with the students [3].

## Interaction with local economies.

When biotech executives and government officials complain about a weak talent pool of business-savvy scientists, they have their own businesses in mind [4]. And schools are listening to their grumblings.

Calgary gears its curriculum toward the needs of industry, says Derrick Rancourt, a coordinator of the university's biotech program. "We thought it would strengthen the local economy if we created some expertise in the area," he says.

Recruiters often try to fill entry-level positions with graduates from nearby schools. Because they depend on these graduates, they sometimes help plan courses or create internships for them.

The State University of New York in its Brooklyn location hosts a biotech incubator where fledgling companies—most of which were started by the school's faculty—rent space for their start-ups. Some of the companies offer internships for students at the university.

Many programs are geared for part-time students working locally who want to switch from the bench to management or seek a promotion. Other programs focus on entrepreneurship and help students build start-ups headquartered locally and elsewhere.

Countries and cities with an entrepreneurial culture will likely produce more business-minded scientists, says O. Prem Das, director of technology development at Harvard Medical School. Australia, a country that strongly values entrepreneurship, is home to a significant portion of universities that offer either a dual degree or some kind of business component in their biotech programs.

Cities known for their biotech clusters can also generate interest in the field. For example, the University of California hosts its biotech entrepreneurship program in San Francisco, one of the largest biotech clusters in the world.

### Will the programs fill the void?

When students graduate from dual degree programs, they want to have acquired a business sense that matches their lab expertise, along with contacts in the industry. But can academics teach students not to be so, well, academic?

Time devoted to education allows entrepreneurs to slow down and take a few years to observe the field. School allows them to take

the time to make thoughtful decisions on who they want to work with and which technologies to pursue.

But clearly, a few courses in basic science can't replace the bench experience aspiring researchers would receive in a post doctoral position. Likewise, class time could never rival experience gained through personal relationships with people in the business.

True, some universities are making efforts to connect students to investors, intellectual property lawyers and executives. What these introductions accomplish is difficult to measure.

Students who build start-ups using the investors they met in school are evidence of success. But no amount of networking or lab time will mold students to love the business of science. A student must have the entrepreneurial bug—or at least a knack for managing—to translate an idea into a product.

### References

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