Plant Biotechnology PSM: A new MS degree opens a world of opportunity for today’s scientists

Plant biotechnology holds great promise for meeting the needs of feeding the world in the face of growing population coupled with global climate change. The sweep of plant biotechnology’s influence on sustainable resources and quality of life for all cannot be underestimated. In other words it offers an abundance of opportunities for biologists who desire to engage with some of our most pressing issues in the decades before us.

The Plant Biotechnology MS degree stirs up science with business. To capture students’ imagination for plant biotechnology’s scope and to prepare them to step into some unique opportunities it offers, the Plant Biology Department launched a new kind of non-thesis MS degree in Fall 2011 -- the Plant Biotechnology Professional Science Masters (PSM). While research skills are emphasized in thesis-based graduate degrees, the PSM diffuses the “bench” focus with learning targeted to the interface of science and business. Like the thesis-based MS, the PSM degree values graduate lab- and field-based studies, while also creating experiences to help students transition to jobs “away from the bench” where they will merge their expertise in the fundamental life sciences with the business skills and acumen needed to thrive in the fast-paced global marketplace.

Collaborative industry team projects are key to the success of the Plant Biotechnology PSM. Now in its second cohort, the Plant Biotechnology PSM partners with entities across the Illinois campus to provide students with biotechnology fundamentals and a taste for the commercial application of science. This sets the stage for collaborations with industry partners who provide students with crucial “real world” training in the dynamic roles of science and business. One way the PSM accomplishes this is through its team-based case study projects. Through them, the PSM students take on questions of authentic value to their company sponsors.

Both concrete and intangible benefits accrue for PSM students during their team industry projects. They learn to recognize and deal with ambiguity and practice working through a variety of challenges towards their goals. They emerge with knowledge of the dynamics, pace and decision-making in the business environment and often find they have the flexibility to integrate and grow more quickly in a company setting after graduation.

PSM students completed two industry team projects during the 2013-14 academic year. In their first project with LI-COR Biosciences (Lincoln, NE), the current cohort of Plant Biotechnology PSM students focused on the company’s aims of meeting the needs of the plant-based protein research community. The project entailed both hands-on protein-based laboratory research as well as the development of marketing and data analysis of global patterns of protocol preferences among plant protein researchers. In a second project this past year, the team applied business analytics, interviewing skills and research of the primary scientific literature to develop recommendations for a new initiative in the commercial landscape at Dow AgroSciences (Indianapolis, IN).
The team industry projects are a new direction in the IB curriculum that have the potential to expand to other programs and disciplines. The Plant Biotechnology PSM reaches out to science-based business partners to invite them to collaborate on the development of a case study project. By making valuable contributions to graduate training, the company partners impact the program of study while gaining perspectives on the skills and competencies of potential employees. In turn, the students gain from their business advisors vital feedback of lasting benefit with real experiences in team dynamics, project management and business communications.