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Developing Investigative Labs for Biology 230

In September, Biology 230: Physiological Systems will make its debut as the latest addition to the biology program's introductory course sequence. As the name implies, this course will spotlight the fundamental physiological functions of plant and animal systems in order to improve student preparation for upper level studies. Most of the course content was developed during the 2015-2016 schoolyear. However, the curriculum team opted to set aside the laboratory component for summer work. When classes let out in May, I was privileged to join their workforce.

My first few weeks on the job consisted mostly of literature surveys and meetings with faculty mentors, where we brainstormed ideas for a lab built from multi-session, investigative modules that would reinforce course themes by addressing relevant physiological questions. From our ideas we pieced together the framework of the lab: two modules featuring plant and animal physiology, respectively—each module centered on a core research question to be explored through design and execution of a class research project. We decided to concentrate the plant-focused module on the complex and remarkably variable ways in which environmental stresses affect plant physiology; for the animal-focused module, we chose to explore scientists' increasing interest in transient, exercise-induced physiological changes to chronic disease risk factors. Our hope is that these topics, combined with a problem-focused learning approach, will both captivate students and prepare them to use their scientific competencies to address global challenges.

Since establishing this laboratory framework, my responsibilities have involved a mishmash of outlining, project-designing, experiment testing, and, most recently, lots and lots of writing—to produce (and I'm a little surprised to be writing this) a lab manual. Needless to say, the process has been uniquely challenging and wonderfully rewarding. I feel I have grown in biological literacy and pedagogical proficiency, both of which will serve me well as I continue to pursue a career in medicine, and I have savored this opportunity to undertake a project slowly and meticulously, without the urgency that comes from pending tests and assignments. What I will come away most grateful for, however, are the validation and encouragement that come from working collaboratively with outstanding professors. I am a cautious, soft-spoken person, and while I don't think these attributes are necessarily bad, I can speak to their ability to keep a student from thriving in her chosen discipline. At my own fault, I have spent much of my college career feeling like a spectator in the Biology Department rather than a biology major. I knew that needed to change. This summer, with mentorship from professors who treated me as a respected colleague, it did.