Course Focus

BIOM 421 - Concepts in Plant Pathology - Alan Dyer

Mareike Johnston and Alan Dyer

You are the person who jumps out of a pickup truck in front of a thousand acres of potatoes devastated by plant disease and yells "This is Cawesome…!" How do I know this? I know this because I have done it and as you start your journey in plant pathology, you too will witness the devastating impact plant diseases can have on crop production. So expect that it will happen to you as well and get used to it…..and ask your friends, husbands, wives and family to get used to it too…..because it's going to happen a lot. Plant diseases are amazing!

Ok now! Let us be clear, plant pathology is not about the devastated potato field. Plant pathology is about the grower whose field you just examined. You see, plant pathology is ultimately about people. If you choose a career in plant pathology, you will witness catastrophic crop losses and come to understand the impacts plant diseases can have on human lives and communities. You will talk with the grower distraught over losing his crop and possibly his land and livelihood. You will meet with the mental health professional from a small rural community and they will tell you about the pressures crop failures place on family and community structures. While barely a blip on the American psyche, you will understand why plant pathologist/breeder, Dr. Norman Borlaug, was awarded the Nobel Peace Prize in 1998. It is because on a global scale, plant sciences and plant pathology are important, and that is why they exist!

Given the human impacts alone you should be interested in plant pathology but it is more than that. Plant pathology is complex and fascinating; relating to a plethora of disciplines to provide practical understandings of complex situations. Where else may one talk about chemistry, physics, ecology, zoology, botany, microbiology, mycology, virology…..and still be talking about a single scientific discipline. Regardless of your interests….your curiosities… or scientific passions, you should be able to find a place in plant pathology.

To start your journey as a budding plant pathologist, BIOM 421 "Concepts in Plant Pathology" is an excellent first step. The course provides a global view of plant pathology as well as a foundation of understanding for agricultural producers and anyone serious about the plant sciences. The course starts with a brief introduction into the amazing field of plant pathology, its history and primary concepts. It

continues with sections delving into “fungal”, bacterial and viral pathogens as well as parasitic nematodes, parasitic plants and abiotic injuries. Because fungal pathogens cause the majority of plant diseases, they receive the majority of the focus; therefore, you will obtain a rudimentary training in mycology as well. The lectures for this course start with a brief review of the previous lecture followed by new materials and concepts. Throughout the review and lecture, you will be expected to orally answer questions relevant to the current materials. Lectures are reinforced by laboratory materials organized by Mareike Johnston, Mina Talajoor and myself. Ultimately, as a student in the class you will become familiar with the major groups of plant pathogens, how plants defend themselves and how disease concepts can be applied to achieve successful disease management. We strive to keep this course fresh, simple and practical.