

# Professor Eric Patterson CSS 893 Section 731

Spring 2024

## CSS893: Special Topic - Molecular Resistance Evolution

*Meeting Time and Date: TBD by graduate students enrolled*

### Course Description:

In all systems where humans use chemicals to control the populations of other organisms, resistance can, and most likely will, evolve. Resistance evolution is an almost perfect example of microevolution in action, and can be found across domains, from bacteria to fungi to insects or plants. In this class we will explore mechanisms of resistance, the genetic and molecular processes that give rise to resistance, fitness penalties associated with resistance, and the spread of resistance in a population. Students will be expected to read primary literature, interpret the results, evaluate the limitations of the research, and discuss it with the class. Students who complete this course will leave with a better understanding of natural and artificial selection and their impacts on the evolution of a pest species.

### Course Learning Objectives:

- Students will demonstrate understanding of the principles of pesticide resistance evolution.
- Students will be able to identify and discuss differences between pesticide resistance evolution in different types of pest organisms.
- Students will be able to describe the molecular genetic mechanisms of pesticide resistance.
- Students will articulate management plans for pesticide resistance.

