**Biomath Seminar**

**Friday, April 10**

**1-2 pm**

**Harris 4119**

*The effects of nicotine sequestering on the dynamics of hyperparasitism in a stage-structured model of Manduca sexta and its related parasitoid wasps*

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**Mark Zimmerman**

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**Abstract:** In this talk I develop a model to study the effects of host nicotine sequestering on the dynamics of a host-parasitoid-hyperparasitoid population. Using *Manduca sexta* as the model organism, I will present two stage-structured differential equation systems. The first is a single patch model to study the changes in dynamics that occur between plants that contain nicotine (i.e. tobacco plants) or do not contain nicotine (i.e. tomato plants). The second is a two patch model that allows hyperparasitoids to choose between patches that are nicotine negative and nicotine positive. Both models will be used to investigate how host nicotine sequestering may impact hyperparasitoid diversity.