The SUMO Speaker Series for Undergraduates

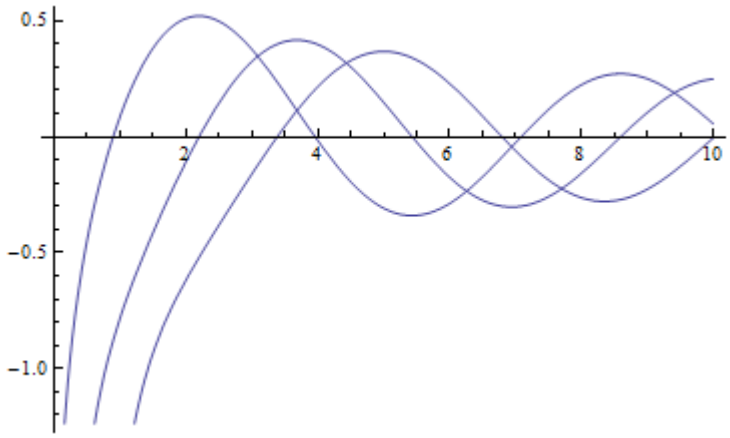
(Food Provided)

Wednesday, May 30th

4:15-5:05, room 380C

A PDE model for biological aggregation: the battle between dispersal and aggregation

Professor Nancy Rodriguez



ABSTRACT:

Recently, there has been much interest in modeling the competition between a species' desire to aggregate and the desire for space, referred to as dispersal. In this talk I will discuss how we can use Partial Differential Equations to model this competition. Once we obtain the model, I will discuss the fundamental quantities that help us determine when aggregation defeats dispersal, when dispersal defeats aggregation, and when they balance out. These correspond, respectively, to the existence of solutions which blow up in finite time, the existence of solutions that persist for all time, and critical mass phenomena.

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