Seminar

Dr. Jessica Enright
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Friday, August 19, 2016
10:00a.m., HH-3017

Let vertex v be a heifer: two applications of graph theory to the epidemiology of Scottish cattle

Abstract:

Graphs derived from contact data play an increasingly important role in disease control policy. Inspired by the graph derived from cattle trades in Scotland, I will talk about two applications of graph theory to controlling diseases of cattle (or other species, really, but my examples will be mainly bovine). The first is a method of finding a minimum edge deletion to limit maximum outbreak size, using a tree decomposition of limited tree width. The second is a very simple method of calculating expected outbreak size on a dynamic graph using a breadth-first search ordering. Both of these problems are hard on general graphs, but tractable in these special cases that turn out to be useful in real-data situations. This work has been conducted jointly with Kitty Meeks and Rowland Kao, both of the University of Glasgow.