

Creighton University Department of Mathematics Invites You To Attend

# Department of Mathematics Colloquium

Friday, November 22, 2019 | 11:00 a.m. | HLSB 522

## “Methods for Estimating Animal Abundance”



Presented by  
*Katie St. Clair, Ph.D.*

*Associate Professor of Mathematics  
and Statistics*

*Carleton College, Minnesota*

Join us for bagels at 10:30 a.m. before  
the talk in HLSB 503.

A common concern among applied ecologists and wildlife managers relates to the abundance, or size, of an animal population. They may use estimates of abundance over time to help understand a changing ecosystem or they may use annual estimates to set limits on the harvest of a particular species. But getting accurate estimates of a population size is challenging because animals can be hard to detect in their natural habitat and methods that increase accuracy can be very costly and time consuming. I will discuss two research studies that use different methods of modeling animal detection and abundance. In the first, I will describe how distance sampling methods can be used for estimating abundance of invasive zebra mussels in Minnesota. In the second, I will describe a model for estimating moose detection rates and abundance in northern Minnesota using data collected from two sources: a radio collar study of moose conducted in one season and annual aerial plot surveys of the region.