



# Colloquium Notice

## Kelsey Hallinen

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### *Population Dynamics in Complex Biological Systems*

Employing tools from statistical physics and complex systems, my research focuses on understanding collective behavior in biological systems. Using a mix of experimental studies and physics driven modeling, I have been able to elucidate rules and equations that can explain the complex, collective behavior in a variety of systems, from bacterial populations to neural networks. In this talk, I will discuss my previous research examining the dynamics in a mixed population of antibiotic resistant and sensitive bacterial cells as well as population decoding studies of neural signals in the small nematode *C. elegans*. Through these examples, I will demonstrate how my collective systems approaches can generate insights into how groups of simple actors- such as bacterial cells or neurons- can lead to complex emergent outcomes. As I look towards my future work, I will apply these collective systems approach towards another complex system, bacteria in flow. I will discuss my preliminary results and future plans for studying bacterial adherence and dynamics in complex flow environments, inspired by clinical endocarditis infections.

Friday

**March 3, 2023**

Starts at 12:15 PM

Coffee at 12:00 PM

**SB B326**

This talk is accessible via [Zoom](#) or use  
**meeting ID 829 2687 2594** and **passcode 866995** to join