



**November 7, 2018**  
**4-5:30 PM—CRTN 1042**  
**ENGINEERING**  
**APPROACHES TO**  
**SOLVING ANIMAL**  
**WELFARE ISSUES**

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Addressing animal welfare issues is a complex systems challenge, which requires knowledge of disciplines across the system. We can apply engineering systems theory and systems approaches to proactively address welfare challenges, and we can apply engineering technology to aid in gathering the data and information we need to understand our system and implement solutions.

For example, as climate shifts, thermal environmental challenges may become more prevalent. Preventing or alleviating heat stress in animals requires understanding both the animal and the physical environment. We need to understand biological responses of pigs under varying thermal conditions in order to determine thresholds of concern. We also need to understand the physical housing system and approaches to artificially controlling the environment. We can apply engineering technology to monitor animals and create controlled test environments in the lab: smart research tools; and we can implement solutions using engineering technology on farms: smart sensors and smart controllers. Pairing science and engineering technology affords opportunities for exploring in a lab setting and creating and implementing innovative solutions for the field.

We'll look at this example and other opportunities for merging science and engineering technology to solve animal welfare challenges using a systems approach.



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