

# Increasing Scientific literacy through Inquiry-Based Professional development

Nathan W. Conner, University of Nebraska-Lincoln \*  
Bryan Reiling, University of Nebraska-Lincoln  
Matt Kreifels, University of Nebraska-Lincoln  
Christopher T. Stripling, University of Tennessee



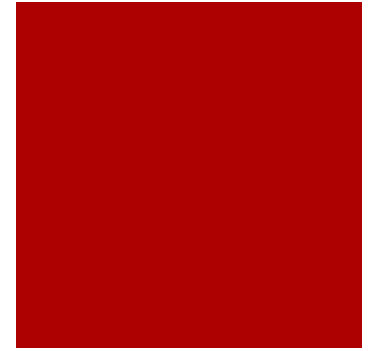
# Background

- Over 50% of high school students in the U. S. lack proficiency in science (Partnership for 21st Century Skills, 2008)
- 27% of 11th grade students in Nebraska lack proficiency in science (Nebraska Department of Education, 2015)
- Nebraska Coordinating Commission of Postsecondary Education Funded this project



# Project Goals

- Enhance science literacy in Nebraska by
  - providing secondary life science educators with a year long professional development (PD) program
  - Teaching real-world science through
    - genetics,
    - muscle biology,
    - microbiology,
    - nutrition
  - Using inquiry-based teaching methods



# Project Objectives

- 1) Improve secondary life science educators' content knowledge within the sciences (genetics, muscle biology, microbiology, nutrition)
- 2) Improve secondary life science educators' instructional approaches through incorporation of inquiry based learning techniques
- 3) Increase secondary life science educators' ability to use principles of animal and food science, as a context for teaching science



# Components of the PD

- Face-to-Face Workshop (2 day)
- Zoom webinars
- Curriculum development and implementation
- Face-to-face Workshop (1 day)



# Evaluation of PD

- Participants completed a 12 question Evaluation
  - Focused on participant confidence and perceived ability to implement inquiry-based learning techniques
  - 4- point Likert scale (strongly disagree to strongly agree)



# Results

Increased content knowledge in genetics	3.22
Increased content knowledge in muscle biology	3.37
Increased content knowledge in microbiology	3.30
Increased content knowledge in nutrition	3.37
Plan to advance level of inquiry based learning in their classroom	3.52
Use essential features of classroom inquiry and their variations to develop inquiry based learning activities	3.37
Make inquiry based learning more learner directed	3.44
Incorporate experiential learning into learning activities	3.56
Incorporate student's previous knowledge into learning activities	3.63
Confident in implementing their new knowledge and skill	3.48



# Findings

- Purposeful integration of inquiry based learning
- Increased discipline specific content knowledge and intentions to integrate new knowledge into their curriculum





# Discussion Time

- Please share your experience with similar programming.
- What impacts have you witnessed with similar programming?



# Thank You!

## Any Questions?

