Active Learning in a Lecture-Based Animal Science Course

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Overview

▪ Introduction

▪ Purpose of Course and Activities

▪ Framework of Activities

▪ Results

▪ Conclusions and Implications
Introduction

- Course Activities Development
  - Needs Assessment
    - Feedback from alumni and industry (2011-2012)
    - Feedback from students (2015-2016)
    - Curricular assessment/improvement
    - Observations

- Curricular Needs:
  - Skill development/proficiencies
    - Technology, communication, problem-solving, critical thinking, leadership, team work
  - Application and Analysis
    - Animal biology, industry standards, current research
Purpose

- Lactation Physiology – A comprehensive investigation of the many facets of lactation with emphasis on anatomy, physiology, milk composition, management, and health of dairy animals

- Encourage experiential learning and address ascribed needs

- Two 75-minute lectures per week
  - No lab section
Framework of Activities

1) Article review and discussion
   - Students self-sorted in small groups and assigned articles with presentation dates
     - Corresponded to course topics
   - Each group served as discussion leaders on assigned date
     - Prepared presentations and discussion questions
     - Met outside of class – at least two weeks prep time
   - All students wrote reviews of all articles
   - Rubric provided and used for grading/assessment
Framework of Activities

2) Hormone Presentations

- Need – Poor knowledge of hormone function and sub-optimal quiz grades
  - Students randomly assigned to groups
    - One hormone per group

- Everything completed in one class period
  - Research, presentation development, present

- Rubric provided with minimal criteria
  - Hormone classification, origin, target tissue, interactions, phase of lactation, five other facts, group participation, creativity
Results

- Improved skills across both activities
  - communication, critical thinking, teamwork, confidence

Student Feedback

- Article reviews: formative mixed; summative positive
  - Difficulty discussing research at first
  - Better understanding of lecture topics
  - Confidence with journal article analysis
  - Want for more articles and discussion

- Hormone activity: scary but necessary, fun and useful, high creativity and enthusiasm, improved grades
Results

- Grades Improvement
  - Hormone Quiz (pre-activity) – 25 points
  - Class average: 10/25 = 40%
  - Final Exam Hormone Section – 20 points
  - 3 weeks post-activity
  - Class average: 17/20 = 85%
Conclusions

▪ True “lab time” is difficult to substitute in Animal Science courses

▪ Active learning is a great complement to passive learning once a solid foundation is provided

▪ Many modes for assessment of student success

▪ Need for more discussion of active learning and examples of activities in various disciplines
Future Plans

▪ Further assessment
  ▪ Formalize the Pre-test/post-test
  ▪ More impromptu presentations per semester
  ▪ More literature discussion and question formulation

▪ Need for more experience with journal article analysis
  ▪ Lacking areas: vocabulary, research and experimental design, basic stats, current management practices, etc.
  ▪ Students want more
    ▪ Undergraduate journal clubs?
QUESTIONS??