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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



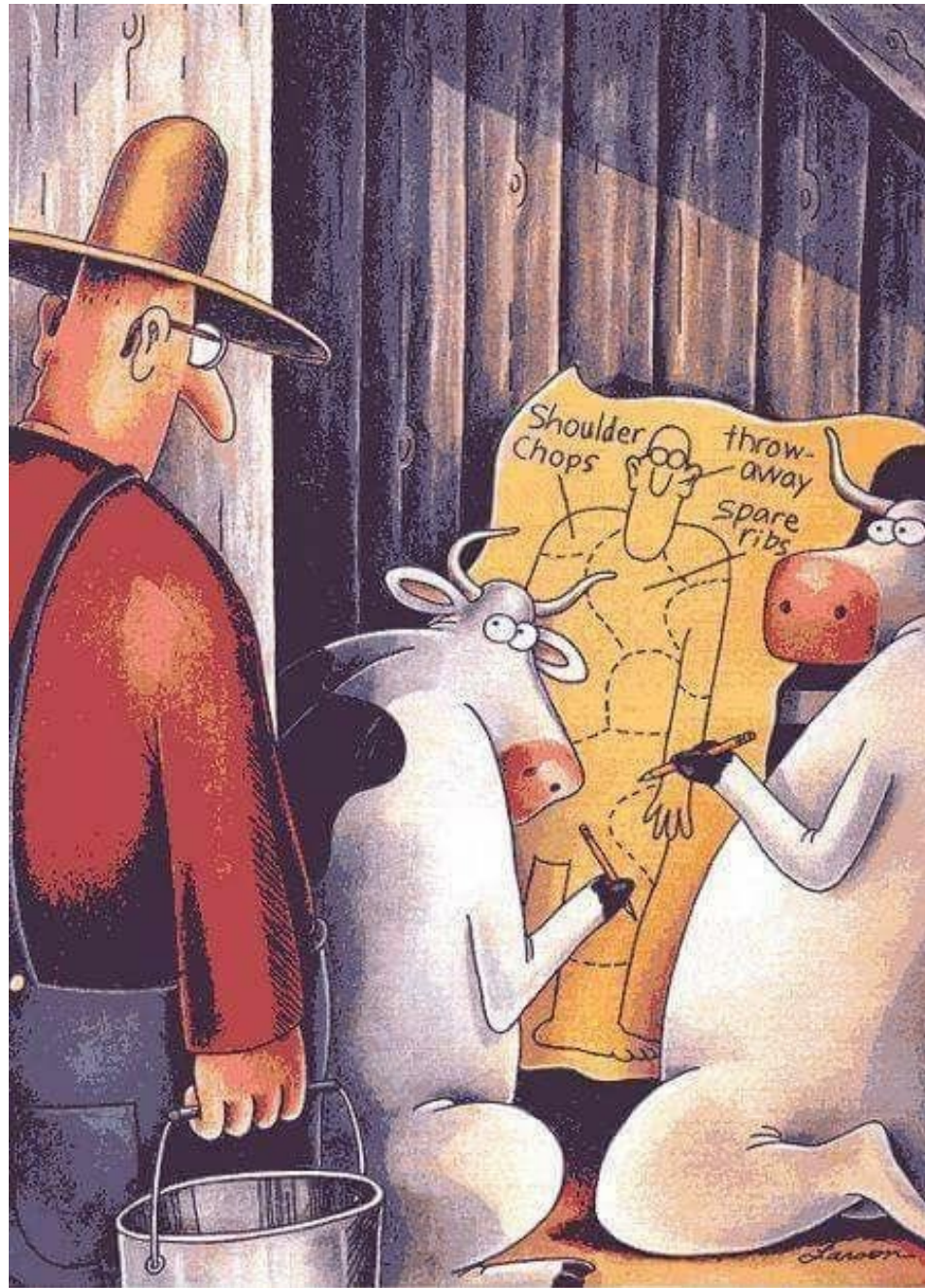
Results

- 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





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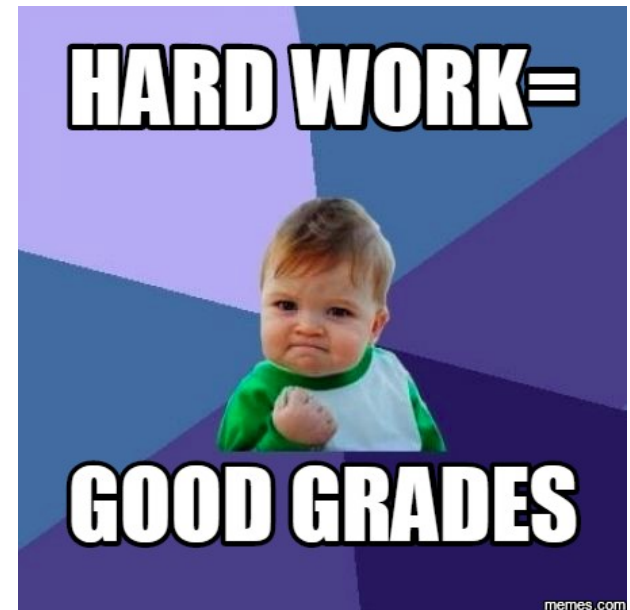
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Results

- 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??



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