421 Putting theory into practice: Teaching strategies to increase student interest and engagement in introductory animal science courses. E. L. Karcher*, Purdue University, West Lafayette, IN.

Each year it is estimated that 58,000 new job openings are available for graduates with a bachelor’s or more advanced degree in food, agriculture, renewable resources, or the environment. However, only 61% of these jobs are filled with graduates in these areas of expertise. One possible way to close this gap is to focus on classroom instructional strategies that can greatly influence student curiosity and interest in a subject. In introductory animal science courses, the majority of students have little or no previous knowledge or experience in agriculture. This provides an opportunity to increase interest and curiosity in animal production early in a student’s undergraduate program. Specific classroom interventions, such as active learning strategies, create learning environments to foster student feelings of interest and curiosity. Implementation of active learning through social, authentic, problem-based activities develops student interest and motivation by supporting needs for autonomy and relatedness. Hands-on, problem-based activities may be more interesting and motivating to students compared with traditional lecture strategies. Additionally, first-year students in animal sciences self-report high levels of curiosity in animal science. The goal should be to continue stimulating this curiosity throughout the course and undergraduate program. Case studies and laboratory stations, designed with interactive and group-based instructional methods, have shown great benefit to sustaining curiosity in first-year animal science students. Classroom interventions targeting introductory courses have the potential to increase career awareness by stimulating student interest and curiosity in the subject. This integration may assist in closing the growing employment gap in the agricultural sciences.

Key Words: active learning, motivation, undergraduates

422 Uses of technology to increase interest and learning. M. A. Wattiaux*, University of Wisconsin-Madison, Madison, WI.

Learning theories have made it clear that interest and motivation are essential to the learning process. Instructional technology is often instructor-centered (what can technology help me accomplish in my class?), but it can have both beneficial or detrimental impacts on students’ engagement with each other and with course content. Our objective was to illustrate the use of technology to enhance the quality and effectiveness of in-class activities in small enrollment, discussion-based courses with emphasis on creating a student-centered learning community. In this study, data were collected via a mid-semester survey in a senior level ruminant nutrition course taught between 2012 and 2017 in which readings and quizzes were completed on-line prior to class, followed by in-class discussion of the reading material. Students quantified on a scale of 1 (not at all) to 10 (a great deal) the extent to which each of the following components of the class help their learning: (a) the readings, (b) the web-based quizzes, (c) the in-class discussion, and (d) the explanations given on the chalkboard. Contribution of each class component to the teaching and learning environment of the class was calculated for each student as a deviation from self-reported “overall level of learning”; in the class, which was quantified elsewhere in the survey using the aforementioned scale. Overall level of learning was (mean ± SE; n = 153) 7.3 ± 0.13 and average deviation for (a) reading, (b) online quizzes, (c) in-class discussion and (d) use of the chalkboard was −0.82 ± 0.16, −0.27 ± 0.14, 0.63 ± 0.14, and 0.64 ± 0.17, respectively. Students perceived more learning with in-class activities (c and d) than activities (a and b) completed online prior to class. Although, students did not feel confident that reading contributed “positively” to the learning environment of the class, the on-line quizzes provided them with a certain degree of self-efficacy. These data suggested also that the use of a chalkboard to explain, or more generally to capture and share elements of a discussion in writing, may be a powerful complement to the thinking, speaking, and listening that takes place during in-class discussions.

Key Words: pedagogy, teaching and learning.

423 Motivation and interest in online courses. M. D. Stern*, A. E. Neu, and K. L. Martinson, University of Minnesota, Saint Paul, MN.

Popularity of online learning is increasing so rapidly that it is difficult to estimate growth. A survey published in 2016 showed that 31% of higher education students take at least one online course during their collegiate career and the rate of growth for online enrollment exceeds that of overall higher education student enrollment. Because of demographic changes of animal science students, an introductory Companion Animal Nutrition and Care course was developed to meet the demand of urban and pre-veterinary students. To make this course more accessible campus-wide, an online section was offered as an elective to all majors. Because of the interest in equine species, Horse Management is another popular introductory animal science course offered in-person and online at the University of Minnesota (UMN). Data were collected using these two courses for two consecutive academic years to assess learning gains and satisfaction for the two delivery methods. Learning gains were assessed by comparing pre vs post-test scores. Learning gains (from 12 to 41%) occurred in both courses and delivery methods, with in-person students achieving greater gains in three of the four course years (P ≤ 0.01). Satisfaction was evaluated using questions administered through the UMN’s Student Rating of Teaching (SRT). Satisfaction was high among both courses and delivery methods (>4.8 on a 6.0 scale), although in-person students reported higher ratings compared with online students in some instances (P ≤ 0.01). When evaluating undergraduate, introductory-level online and in-person courses, students utilizing both delivery methods experienced learning gains and were satisfied. Based on these results, online courses can be successfully used to teach undergraduate students introductory-level animal science courses. Another approach to using online tools to interest students in upper level animal science courses such as Ruminant Nutrition, is to restructure and offer a blended-course (in-person and online). Because of decreases in dairy/ beef production students, the course was also revamped to include exotic ruminants. These modifications to the course doubled student numbers.

Key Words: teaching, online, learning.