Teaching/Undergraduate and Graduate Education: Teaching and Learning Tools for Animal Sciences

T377   A learner-centered approach to teaching animal reproduction. J. Moro-Mendez*, *EARTH University, Guacimo, Limon, Costa Rica.*

The objective of this study was to develop a method to assess the learning of animal reproduction and artificial insemination (AI) by students enrolled in EARTH University. The student population comes from 25 countries (Africa, Caribbean, Latin America, and the United States). Within the curriculum there are animal science courses, one being Animal Reproduction and Lactation. This second-year course is based on a student-centered approach and combines hands-on practices and theory aimed at facilitating the understanding of reproductive physiology as well as the acquisition of skills, such as AI, body condition scoring, animal welfare assessment, and heat detection. The course is given to 2 groups (approximately 27 students each) from January to May and 2 other groups from September to December. From January 2011 to December 2012, a total of 213 students were evaluated with a questionnaire at the beginning and end of each session to obtain an objective evaluation of their knowledge and skills related to animal reproduction. Grades were analyzed by a one-way ANOVA to determine the effectiveness of the course. The mean grades of the first and second questionnaires were different ($P < 0.05$), 2.7 and 8.1, respectively (in a scale from 1 to 10). At the beginning of each session, 9.5% of the students reported to have some knowledge and/or limited practice of semen thawing and AI; in contrast, the written evaluation showed that 98% of the students did not know how to properly handle frozen semen, or how to perform AI. At the end of the sessions 82% of the students were able to correctly execute each step of the AI process. A group of 23 cycling Brahman cows was synchronized, and students randomly selected from 2 groups (September–December 2012) were assigned to inseminate them in November 2012. After a period of 35 d, 8 cows (34.8%) did not return to heat and were deemed pregnant. It was concluded that the course allowed students the acquisition of a working knowledge of animal reproduction and AI. Additionally, the evaluation tool provided for an objective assessment of the student learning outcome.

Key Words: student-centered, reproduction physiology, artificial insemination.

T378   Targeting global competencies in animal sciences: Reproduction cases on Mexico. J. J. Parrish* and R. L. Monson, *University of Wisconsin, Madison.*

A global perspective is essential to success of the modern animal scientist. Students are unlikely to take specific courses in global competencies or do not have the flexibility. It is essential that a global perspective be incorporated into the required courses in animal sciences. In the fall of 2011 we initiated case study work in a required Reproductive Physiology course dealing with Mexico. Products were a website that presented background and solutions to the case, and a public service announcement related to the case but targeted at a Mexican audience. Results were from evaluations of the project in the fall 2012 semester. The global learning outcomes we sought to address were (1) critical thinking skills and application to solving problems related to a foreign country, (2) communication skills and in particular, strategies to communicate in a language other than English, and (3) appreciation of ethical issues in global agriculture as they relate to reproduction manipulation. The

overall impacts we expected to have on students were (1) understanding how theory applies to application in the novel environment of a new culture and ethical system, (2) empathize with individual that have differences based on culture and ethnicity, and (3) development of human capacity for competitiveness in global agriculture. Survey questions were scored on a $1 - 5$ scale with 1 being not successful, 3 being somewhat important and 5 being very successful (n = 84). The mean ± SEM scores indicate that the project increased global awareness/competency (3.71 ± 0.11); use of electronic communication tools (3.26 ± 0.13); appreciation of ethical issues in a global agriculture (3.94 ± 0.10); critical thinking ability (4.06 ± 0.11); empathy for individuals whose differences are based on culture, social-economic status, and/or ethnicity (3.92 ± 0.11); and preparedness for understanding global issues in agriculture (3.96 ± 0.11). The approach encouraged students to investigate Mexico, utilize both verbal and written communication skills and appreciate challenges faced in the management of reproduction in Mexico.

Key Words: case studies, international, reproduction

T379   Evaluation of relationships between questions on the IDEA survey for university and animal science courses. M. J. Anderson, K. J. Stutts, M. M. Beverly*, and S. F. Kelley, *Sam Houston State University, Huntsville, TX.*

The Individual Development and Educational Assessment (IDEA) survey is a mechanism that uses student feedback to assess and improve teaching, learning, and the higher education process. The IDEA survey contains questions pertaining to course objectives, teaching methods and styles, and a description of the course with the goal of determining the quality of the instructor and overall course. The objective of this study was to determine relationships among questions on the survey and to determine if differences existed between animal science courses and all other courses offered at the university. Data from 27,430 courses (238 animal science courses) taught over a 6-year period at Sam Houston State University were used in this study. Correlations were calculated between all questions on the survey to determine if relationships existed between each of the individual questions for both university (Univ) and animal science (AnSc) courses. Questions which pertained to the amount of work, assignments, and overall course difficulty (questions 33–35), were not strongly correlated (r <0.70; $P < 0.01$) to any other survey questions for Univ or AnSc courses. Additionally, for AnSc courses, questions concerning the desire to take the course regardless of the instructor and students' workload compared with other courses (questions 37 and 39) were not strongly correlated (r <0.70; $P < 0.01$) to any other survey questions. For Univ courses, questions pertaining to instructor abilities and progress toward specific objectives (questions 1–32) were consistently strongly linked (r >0.70; $P < 0.01$) to each other. However, for AnSc courses, this association between questions 1–32 was weaker than the association observed for Univ courses. These correlations indicate that students in animal science have a different perception of courses than the university student body as a whole. As instructors in animal science, it is our obligation to identify how our students differ from the rest of the university and adjust our teaching styles to accommodate those differences.

Key Words: undergraduate teaching, IDEA, animal science

T380 Implementation of a hybrid-flexible instructional model in the animal sciences—Technical considerations to optimize student educational experience. M. C. Chakerian*, T. A. Evans, B. A. Wenner, R. W. Flood, M. R. Hendrick, H. N. Zerby, and J. M. Osborne, *The Ohio State University, Columbus.*

Instructors of the animal sciences writing course Animals in Society redesigned it to utilize technology to enhance the student learning experience (funded by the OSU Office of Distance Education and eLearning). The priority was to provide students flexibility for how and where they attended lectures, while considering student preferences for in-person engagement with the instructor and/or lack of confidence in technology skills. Increased class size, limited access to large lecture halls, and issues with student movement on the Columbus campus due to conversion to a semester system contributed to the need for course attendance options. The Hybrid-Flexible (Hy-Flex) Instructional Model is a course framework that allows students to choose daily to attend lecture in-person or synchronously online. Elements of the delivery system were selected for compatibility with classroom infrastructure and the OSU course management system, cost to students, and ease of use by instructors and students. Based on these criteria, Adobe Connect and Poll Everywhere were selected; an activity was designed for students to test the technologies before course implementation. In autumn 2012, 94 students consented to participate in a research study. At the start of the term, 8% of students noted they would always/almost always attend class online, while 79% indicated they planned to attend mostly/always in person. At the conclusion of the course, 72% reported attending always/almost always online, while 21% reported attending almost always/always in person. Attendance data support student perception. For the term, 19% of students attended online less than 20% of the time and 64% attended online greater than 60% of the time. The problem most frequently reported by students attending online was wireless access in their location. Student perception of satisfaction and comfort with technology utilized both exceeded 85%. Results suggest that the technologies employed satisfied the criteria to support student engagement with the course and provided a highly acceptable alternative for students.

Key Words: technology, online, anytime/anywhere learning

T381 Student perception of horsemanship skills after completion of a horse judging course. M. Nicodemus*, T. Bova, and B. Tisdale, *Mississippi State University, Mississippi State.*

Through thorough consideration horse judging officials form an opinion concerning the ranking of horse show classes they are judging and this is done using their past horse experience. Through collegiate horse judging courses students develop the experience needed to judge. This experience is often based on observations of horse show classes, but it usually does not include the students performing the activities associated with the class they are judging; and thus, study objective was to determine if through the observational activities during a collegiate horse judging course students gain a perceived ability to be able to perform the classes they are judging. A 19 question survey was given to students (n = 20) at the start and end of a collegiate horse judging course with questions focused on the students' perceived ability of their horsemanship skills using a Likert scale of 1–5 with higher scores indicating a higher perceived ability to perform the horsemanship activity. Average scores were determined for each question and analyzed by a one-way ANOVA to determine the influence of the course on perceived horsemanship abilities. All questions showed score improvement with 3 questions resulting in significant increase of scores ($P < 0.05$) in which these questions focused on more advanced pattern work on the ground and under saddle, which were all topics covered in the course. None of

the questions resulted in an average score of 5 as the highest score was 4.5 given for 2 questions for the final course survey focused on basic ground handling and health care activities. By the end of the course, the lowest score was 3.1 with the question focusing on advanced riding activities specific to society-type breeds in which these breeds and their associated classes such as native costume, liberty, and saddle seat were not covered in this course. In conclusion, while the learning objectives of a collegiate horse judging course are not focused on developing horsemanship skills, the students' perception of their horsemanship abilities may be improved by the development of their abilities to judge the classes associated with these horsemanship activities.

Key Words: horse judging, horsemanship

T382 Reorganization of experiential learning activities into a single multi-section course. A. C. Dilger*, L. Redman, and W. L. Hurley, *University of Illinois, Urbana.*

Encouraging students to engage in out-of-the-classroom learning experiences is a long-standing priority in the Department of Animal Sciences at the University of Illinois. Recently, experiential learning opportunities fulfilling this curriculum requirement were organized under one multi-section course. Students are required to complete a memorandum-of-agreement with a faculty supervisor outlining their proposed activity, learning objectives, and work product to demonstrate their learning. Considerable flexibility was maintained within this organization so that students can pursue a wide range of experiences. This reorganization provides the opportunity to evaluate the breadth of the students' experiential learning activities. From the summer 2012 through spring 2013, 185 students (39% of the animal sciences majors) completed 238 experiences supervised by 38 different faculty supervisors. Students engaging in multiple experiences accounted for 17.7% of the total, with 14.3% engaging in 2 experiences and 3.4% engaging in 3 to 5 experiences. Students earned 1 (49.2%), 2 (29.8%), 3 (13.0%), or 4 h (8.0%) of credit for experiences across an array of activities. The majority of experiences involved undergraduate research (33.2%). A substantial number of experiences reflected a companion or exotic animal interest including internships at a local county humane society (18.9%), companion animal spring break trip (13.4%), working with a veterinarian (8.0%) and interning at zoos, sanctuaries or rescue organizations (3.0%). Other experiences included teaching assistance in the required animal handling course (8.0%), on-campus special projects (4.2%) and internships with agriculture groups (1.7%) or companies (1.7%). Study abroad accounted for 3.8% of the experiences. Organization of diverse experiential learning opportunities under one course number with multiple sections provides important information about the range and nature of opportunities in which students engage. This allows the department to further enhance the value of experiential learning to its students.

Key Words: experiential learning, course organization, undergraduate

T383 Effect of correcting missed exam questions (regrading) as a learning tool in physiology courses. J. Winkler*, A. Sexten, A. Rhodes, and T. Rozell, *Kansas State University, Manhattan.*

Teaching large lecture courses presents many challenges for enhancing and monitoring student learning using exams. One technique that may improve student learning and provide more individualized opportunities for instructor feedback is the use of an exam "regrading" exercise. Students in ASI 533, Anatomy and Physiology, at KSU have the opportunity to correct exam questions and receive up to half credit for

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points originally missed. This assignment allows students an opportunity to correct misconceptions soon after the exam, with an incentive of receiving credit to improve their overall score. The objective of this study was to determine whether performance on the regrade assignment is predictive of the comprehensive final exam and overall grades in the course. To meet this objective, original exam scores, regrade scores, final exam scores, and overall course scores were analyzed by ANOVA (n = 999). Data have been compiled over the past 7 years, beginning in the fall of 2005. Students doing at least one exam regrade had significantly greater mean final exam scores and overall course grades ($P < 0.05$). The results varied from year to year, but in most years students that did regrades for at least 3 exams had greater final exam and overall course grades ($P < 0.05$) than those doing no regrades. From our results it appears that the exercise of going through exam questions missed soon after the test and explaining the correct answer is valuable for student comprehension and likely retention of basic concepts, as assessed by the comprehensive final exam and overall course grades.

Key Words: student learning, exam regrades, comprehension