

677 Critical thinking dispositions of undergraduates in two animal science courses at the University of Georgia. T. D. Pringle*, J. L. Douglas, and J. C. Ricketts, *The University of Georgia, Athens*.

Students in two University of Georgia (UGA) Animal Science (AS) courses were utilized to evaluate the critical thinking disposition (CTD) of a sub-population of UGA undergraduates and to compare CTDs across two courses taught using different teaching methods. Fall semester 2006 students enrolled in the Introduction to Animal Science (ADSC 2010; n=71) and Live Animal and Carcass Evaluation (ADSC 3200; n=18) courses were asked to complete a CTD Assessment (UF-EMI) at the beginning of the semester and a modified UF-EMI at the end of the semester, which included a retrospective and a current assessment. Students were asked to respond to 26 prepared statements using a 5-point scale (1=strongly disagree to 5=strongly agree). Responses to the statements were divided into three constructs. Engagement (E) which measures students' predisposition to searching for opportunities to use reasoning, anticipating situations that require reasoning, and confidence in reasoning ability; cognitive maturity (M)

which measures predisposition to being aware of the complexity of problems, being open to other view points, and being aware of their and other's biases and predispositions; and innovativeness (I) which measures predisposition to being intellectually curious and having a desire to know the truth. Data were analyzed using SPSS, with $P < 0.05$ used for significance. At semester's beginning, standardized and summated mean scores for E, M, I and total disposition were 79.27 (43.60), 77.97 (31.19), 80.15 (28.05), and 79.07 (102.79), respectively. Across all categories, UF-EMI scores were higher at the end of the semester than at the beginning. Change in UF-EMI was higher for students in the upper level ADSC 3200 course than the ADSC 2010 course. While AS majors had lower UF-EMI scores than non-majors, AS majors had greater UF-EMI gains in all constructs. Lastly, year in school did not result in differences in UF-EMI scores, while surveyed females scored somewhat higher than males. These data provide a snapshot of the CTD of UGA AS students and suggest that hands-on, experiential learning courses are important to the CT development of AS students.

Key Words: Critical Thinking, Disposition

Teaching/Undergraduate & Graduate Education: Teaching Session II - Curricular Innovation

678 Food Animal Scholars Program: An early selection program for undergraduates at North Carolina State University interested in pursuing a career in veterinary medicine working with food animals. W. L. Flowers*, C. R. Parkhurst, J. A. Moore, C. S. Whisnant, S. L. Pardue, and C. M. Williams, *North Carolina State University, Raleigh*.

The College of Agriculture and Life Sciences (CALs) and the College of Veterinary Medicine (CVM) at North Carolina State University developed a program to identify and prepare students for careers in food animal medicine. The program began in 1992 and was called the Swine and Poultry Scholars program. Initially, one student interested in swine and one in poultry were selected during the first semester of their freshmen year by a committee of CALs and CVM faculty. Students were chosen on the content of an essay and recommendations. Those selected were guaranteed admission to the CVM after completing their undergraduate degree in either Animal or Poultry Science provided they met all the minimum qualifications required including minimum GPA and extracurricular requirements. Each scholar was assigned two mentors – one in CALs and one in the CVM. Responsibilities of the mentors involved meeting with the students to monitor academic progress and provide extracurricular opportunities for them to interact with veterinarians and researchers in the swine and poultry industries. Upon admission into the CVM, there was no binding commitment for students to specialize in food animals. In 2003, the program was expanded to include 6 recipients and 2 alternates with an interest in any of the food animal species and renamed the Food Animal Scholars Program. Selection of students was moved to the second semester of their sophomore year. Participation in extracurricular activities with food animals and GPA were included in the selection criteria. The mentoring program remained basically the same and students were required to enroll in the food animal track upon entry into the CVM. Between 1994 and 2003, only 28% (4/14) of the Swine and Poultry Scholars selected have completed (or are in the process of completing) the program and either are working (or intend to work) with food animals upon receiving their DVM. Since the changes implemented

in 2003, 73% (16/22) of the Food Animal Scholars are still in the program.

Key Words: Teaching, Veterinary Medicine

679 Design and development of a synchronously-delivered graduate course designed for the evaluation and practice of scholarship in animal sciences. L. A. Kriese-Anderson¹ and D. R. Mulvaney*^{1,2}, ¹*Auburn University, Auburn, AL*, ²*Biggio Center for the Enhancement of Teaching and Learning, Auburn, AL*.

The professional life of academics is highly dependent on effective scholarship and the ability to evaluate publications for credibility. Often times, graduate programs rely heavily on transfer of scholarship skills from major professors. Built on a premise that there is a need by graduate students for development of these skills early in their career, our objective was to design and pilot a masters level graduate course targeting learning outcomes of increased awareness, knowledge and skills around scholarship to include proficiency in: conducting literature searches, evaluating research, scientific literature, writing technically for grant proposals as well as writing to transform technical scientific findings into more simplified forms of scholarship appropriate for various and broadened audiences. The course established concepts of working in a learning community (LC) and employed discussion of philosophies of scholarship, methods of research, evaluation of scientific writing, evaluation and practice of written proposals for funding and the process of publishing research findings. The course was delivered synchronously using videoconferencing technologies. Each of the eleven students played a pivotal role in professionally researching facts about writing and evaluating literature and preparing this information for others in the class. Students considered themselves members of a LC thus taking ownership and then chose to energetically and actively, bring learning opportunities to other members of the LC.

Selected formative and summative evaluation rubrics were developed to assess learning outcomes. A five point scale was applied to a 33 question pre- and post-course survey of knowledge or abilities around scholarly practices. Post-course responses increased by 2 points for most survey questions allowing a conclusion that the course was relevant and appropriately designed to meet student needs.

Key Words: Graduate Students, Scholarship, Animal Sciences

680 The value of writing to a real-world audience for animal science students. M. W. Orth*, *Michigan State University, East Lansing.*

For most writing assignments, the students' target audience is a professor, an individual who will be highly knowledgeable and trained in the subject matter of the written work. However, upon graduation, students will communicate with people from a diversity of backgrounds. An assignment was designed to have students in Growth and Musculoskeletal Biology (a junior-senior level animal science course) write to a much younger audience relative to a university professor. Students were asked to read 2 papers from *Nature* on bone metabolism and then write a one-page summary describing bone turnover to high school sophomore biology students using an age-appropriate vocabulary. A first draft was submitted, critiqued, and returned for revision. The final draft was collected, copied, and given to students at a local high school to read during their class period. These students critiqued the papers and filled out an evaluation on how well they understood bone turnover after reading the paper. Questions in the evaluation included "Were there words in the paper that you did not understand? If so, please write them down" and "Based on the paper you just read, write down what you believe are the three most important processes involved in replacing old bone with new bone". They were also asked to recommend a grade. The writing exercise is good for college students because they must translate technical biological concepts into language that typical teenagers can comprehend. As a side note, the two years the college students have done this assignment, the average grades have been higher on the quiz covering bone metabolism relative to the year before the assignment was initiated (80% and 91% vs. 76%). Thus, this assignment may be helping them better understand bone metabolism. The high school students enjoyed reading and grading the papers and took it quite seriously. Their suggested grades generally reflected the quality of the written work. Writing projects like this can facilitate the students' comprehension of a subject and prepare them for communicating to different audiences.

Key Words: Writing, Communication, Bone

681 Tracking undergraduate student performance while learning molecular genetics concepts. B. S. Walters* and T. J. Buttles, *University of Wisconsin, River Falls.*

This Scholarship of Teaching and Learning (SoTL) project documented students' understanding of the molecular genetics concepts that form the heart of modern biotechnology. The project studied animal, plant, and food science majors in three semesters of an agricultural biochemistry course. It is a 200 level class made up of sophomores

through seniors with 50-60 students enrolled each semester. The starting point was to determine students' experience in related courses and level of prior understanding. As a pretest, students were asked to complete a short questionnaire containing questions on related courses and defining 5 terms. Two additional data collection points were utilized. A quiz on DNA structure and types of RNA was given during the unit. The second course exam included questions on DNA and protein synthesis. For data analysis students were grouped based on the related courses completed and in-progress. Mean pretest scores, change from quiz to exam, and change from pretest to exam were calculated. Because of the wide variation across semesters each class was treated as an individual case. The largest group of students (44% - 56% each semester) had completed both introductory biology and genetics classes. The second largest group (17% - 21%) had completed both introductory biology and genetics while taking animal or plant breeding concurrently with biochemistry. The third largest group (9.6% - 17%) had completed introductory biology while taking genetics concurrently with biochemistry. Mean pretest scores ranged from 16% - 36% for group 1, 18% - 30% for group 2, and 10% - 27% for group 3. The mean improvement from quiz to exam on the DNA structure questions ranged from 14% - 32% for group 1, 10% - 50% for group 2, and -17% - 49% for group 3. The mean improvement from quiz to exam on the protein synthesis questions ranged from 30% - 32% for group 1, 24% - 49% for group 2, and 9% - 23% for group 3. The mean improvement from pretest to exam on the protein synthesis questions ranged from 45% - 66% for group 1, 49% - 69% for group 2, and 38% - 62% for group 3.

Key Words: Undergraduate Education, Teaching, Biotechnology

682 Bringing the industry into the classroom: Media interview project. J. A. Sterle*, *Texas A&M University, College Station.*

Twenty-one undergraduate students (18 freshmen, 2 sophomores, 1 senior; 18 females and 3 males) were enrolled in ANSC 107: General Animal Science – Honors Section. In comparison to previous years, most students were not Animal Science majors nor did they have an agricultural background. Students randomly drew one of 11 topics and were given a specific scenario unique to their topic on a later date. Topics included: Use of hormones as growth promotants, the Horse Slaughter Prevention Act, Arizona Proposition 204: Use of sow gestation stalls, use of antibiotics in livestock, and animal well-being. Students were required to research the topic, including opposing views, and write a six to ten page paper on the issue. Three weeks after receiving the scenarios, students received media training from National Pork Board's Operation Main Street program. Students prepared message points and were then interviewed by a media professional and videotaped. Students were given a short survey to complete anonymously. Eighteen of 21 students returned the survey (85.7%). The following Likert scale was used: 1 = very uncomfortable; 2 = slightly uncomfortable; 3 = neither comfortable or uncomfortable; 4 = fairly comfortable; 5 = very comfortable. Results are presented in Table 1. Students were also asked about perceived change in level of knowledge about current issues facing animal agriculture. Response average was 4.67 with 1 = none; 2 = a little; 3 = some; 4 = quite a bit; 5 = a tremendous amount. These results indicate that students' perceived knowledge level of current issues and level of comfort with speaking in various situations increased by completing this project.

Table 1. Response of students when asked about comfort level of speaking in different situations.

How comfortable were you with:	Prior to project	After project
Public speaking overall	2.67	3.72
Speaking in front of peers	3.39	4.33
Speaking with the media	1.83	3.50
Speaking in front of large groups	1.94	2.88
Discussing issues facing animal agriculture	2.17	4.06

Key Words: Teaching, Media, Issues

683 Development of time-enhanced internet-based distance education in feed mill management and feed formulation. P. R. Ferket*, *North Carolina State University, Raleigh.*

Availability or access to feed science programs at land-grant Universities is limited and does not supply feed industry employment demand. The average number of employees at feed plants decreased by 33% from 2000 to 2005, and few employees can take leave for training in priority matters such as regulatory compliance, feed safety, quality assurance, and worker safety (Gill, 2006). Using WebCTVista™ (<http://vista.ncsu.edu>), a course entitled "Feed Mill Management and Feed Formulation (PO425-601)" was developed and delivered to distance education students during 6 consecutive semesters. This 3-credit hour course included 4 learning modules: 1) feed industry, mill design, and management; 2) manufacturing and process control; 3) regulations and quality control; and 4) formulation and product development. Each module included virtual lectures (image-enhanced text, audio, and video), interactive self evaluation, discussion boards, creative assignments, and exams. Enrollment data and learning performance and evaluations of students enrolled in PO425-601 was compared to the on-campus section of the same course (PO425-001). Average annual enrollment in PO425-001 was 17 students, but the addition of PO425-601 increased enrollment to 41 and 44 students in 2005 and 2006, respectively. The 601 section was preferred by about 80% of the PO425 enrollment, and half were full-time feed industry employees. Average final grade and performance distribution were similar between sections 001 and 601. Overall course evaluation score (out of 5) from students enrolled in sections 001 and 601 were 4.56 ± 0.53 and 4.0 ± 0.75 , respectively. The use of the internet was found to be an effective and feasible teaching method to deliver highly technical information to students with time and travel limitations, such as those employed by the feed industry. Sequel distance education

courses ("Advanced Feed Mill Operations and Management" and "Feed Quality Assurance and Formulation") are being developed based on the model of PO425-601 to complete a certificate or minor degree program.

Key Words: Feed Mill Management, Distance Education, Internet Technology

684 The fundamentals of collegiate poultry judging. J. C. Butler* and P. A. Curtis, *Auburn University, Auburn, AL.*

Collegiate poultry judging is a powerful recruiting tool for a department and can also be an excellent way for undergraduates to interact and explore potential options for graduate school. Every year two collegiate contests are held, the National Collegiate Poultry Judging contest at the University of Arkansas and the US Poultry and Egg National Poultry Judging contest at Louisiana State University. In 2006 twelve universities competed for the national title, half of which have a strong poultry program. Several factors that may influence a school's decision to start a judging program include the willingness of a professor to provide leadership, availability of space on the farm for rearing and holding birds, funding and student interest. For those schools willing to make the necessary commitments, the judging team experience can be an excellent recruiting instrument. Our goal at Auburn University is to appeal to high school seniors and incoming freshman who currently utilize technology in their day-to-day social networking. In an effort to adapt to the learning practices of digital natives we have incorporated technology in Auburn University's inaugural poultry judging class. A unique approach to this experience at Auburn University is the use of technology as a teaching enhancement. A DVD was created which allows the students to see inside the hen and see the how the egg is formed. This DVD entitled, "The Virtual Chicken: The Female Reproductive Tract," is used as an introduction to the egg quality judging experience. This DVD shows how defects such as blood spots and body checks occur. iPods are made available to students who do not currently own one. In addition, short podcasts have been developed for study tools to use outside the classroom. The podcasts provide the students with the basics they need to know for each judging ring. Technologies being utilized in this class may be of interest to other universities offering this course. Samples of these technology enhancements will be shown during the presentation.

Key Words: Collegiate Poultry Judging, Recruiting, Education